

**BEDSIDE AND COMMUNITY: 50 Years of Contributions to the Health of Albertans by the University of Calgary Edited by Diana Mansell, Frank W. Stahnisch, and Paula Larsson**

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EDITED BY

*Diana Mansell, Frank W. Stahnisch, and Paula Larsson*



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UNIVERSITY OF CALGARY  
Press

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*Diana Mansell, Frank W. Stahnisch,  
and Paula Larsson*

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## Glossary of Abbreviations:

AARN:	Alberta Association of Registered Nurses
ABVMA:	Alberta Veterinary Medical Association
ACHRI:	Alberta Children’s Hospital Research Institute
ACSM:	American College of Sports Medicine
AFNIGC:	Alberta First Nations Information Governance Centre
AHFMR:	Alberta Heritage Foundation for Medical Research
AHS:	Alberta Health Services
AHS-CZ:	Alberta Health Services—Calgary Zone
ANEA:	Alberta Nursing Educators and Administrators
AR:	Annual Reports (U of C Faculty of Kinesiology)
BHSc:	Bachelor of Health Sciences
BPE:	Bachelor of Physical Education
BSE:	Bovine Spongiform Encephalopathy
CARNA:	College and Association of Registered Nurses of Alberta
CART:	Community Action Research Teams
CCNP:	Calgary Conjoint Nursing Program
CEMA:	Calgary Emergency Management Agency
CGH:	Calgary General Hospital
CHR:	Calgary Health Region
CHREB:	Conjoint Health Research Ethics Board
CIHR:	Canadian Institutes of Health Research
CACMS:	Committee on Accreditation of Canadian Medical Schools
CNA:	Canadian Nurses Association
CP:	Clinical Presentation Curriculum
CPTED:	Crime Prevention Through Environmental Design

CSEP:	Canadian Society for Exercise Physiology
CSM:	Cumming School of Medicine (University of Calgary)
CT:	Computer Tomography
CUPS:	Calgary Urban Project Society
DACVIM:	Diplomate of the American College of Veterinary Internal Medicine
DVM:	Doctor of Veterinary Medicine
EIA:	Environmental Impact Assessment
EIM:	Exercise is Medicine®
EiMC:	Exercise is Medicine® in Canada
ETH:	Eidgenössische Technische Hochschule (Zurich, Switzerland)
EVDS:	(Faculty of) Environmental Design
FMC:	Foothills Medical Centre
FNIGC:	First Nations Information Governance Centre
GIS:	Geographic Information System
GRAPH:	Group for Research with Aboriginal People on Health, OIPH
HIIT:	High-Intensity Interval Training
HPL:	Human Performance Lab (University of Calgary)
HRIC:	Health Research Innovation Centre
HRMB:	Heritage Medical Research Building
HSC:	Health Sciences Building
H1N1:	Influenza A Virus Subtype H1N1 (“Swine Flu”)
H7N7:	Influenza A Virus Subtype H7N7 (“Bird Flu”)
IAPH:	Institute of Aboriginal Peoples’ Health
IMCH:	Institute of Maternal and Child Health
LCME:	Liaison Committee on Medical Education
MArch:	Master of Architecture
MCATs:	Medical College Admissions Tests
MED:	Master of Environmental Design
MLA:	Master of Landscape Architecture
MPlan:	Master of (Architectural/Urban) Planning
MRC:	Medical Research Council (of Canada)

MSB:	Medical Services Branch of the Department of National Health and Welfare
NEAHR:	Alberta Networked Environments for Aboriginal Health
NWT:	Northwest Territories
OCAP™:	Ownership, Control, Access and Possession
OIPH:	O'Brien Institute for Public Health, University of Calgary (previously: Institute for Population and Public Health; Institute for Public Health)
PE:	Physical Education
PHC:	Primary Health Care
ProvLab:	Alberta Provincial Laboratory for Public Health
RCPSC:	Royal College of Physicians and Surgeons of Canada
SARS:	Sudden Acute Respiratory Syndrome
SBS:	Sick Building Syndrome
SDOH:	Social Determinants of Health
TRW:	Teaching, Research, and Wellness Building
UAC:	University of Alberta at (later: in) Calgary
UBC:	University of British Columbia
UCVM:	University of Calgary Faculty of Veterinary Medicine
UME:	Undergraduate Medical Education
U of A:	University of Alberta
U of C:	University of Calgary
U of L:	University of Lethbridge
U of S:	University of Saskatchewan
U of T:	University of Toronto
USDHHS:	US Department of Health and Human Services
USPHS:	United States Public Health Service
VA:	Veterans Administration (United States)
VRRI:	Vocational Rehabilitation Research Institute
WHO:	World Health Organization



## Acknowledgements

The idea for this book was conceived by Diana Mansell several years before the fiftieth anniversary of the University of Calgary. The university had become autonomous in 1966, transitioning from its status as the “University of Alberta at Calgary” (or “Calgary Branch”) to Calgary’s own university. Dr. Mansell communicated this idea to her colleagues in the Faculty of Nursing, where she had been an instructor in nursing and nursing history for several decades before her recent retirement. Fortunately, many of her colleagues endorsed the idea of describing and examining the health-care contributions of the University of Calgary for the anniversary celebrations in 2016. Furthermore, the previous dean of the nursing faculty, Diane Tapp, supported the project through additional research time, research assistants, and liaising with potential research funding groups and institutions.

Dr. Mansell followed through with her idea and contacted Frank W. Stahnisch, the holder of the Alberta Medical Foundation/Hannah Professorship in the History of Medicine and Health Care at the Cumming School of Medicine, who became quite excited about the idea and immediately supported the project, since it offered important and intriguing opportunities for cross-departmental and inter-faculty collaboration, networking, and support. This had been successfully practised before in inter-professional learning workshops in the history of medicine and nursing between Diana and Frank. Together, they reached out to administrators and scholarly colleagues working on history topics in the Faculties of Kinesiology, Medicine, Veterinary Medicine, Education, Science, Arts, Environmental Design, the O’Brien Institute of Public Health, Alberta Health Services, and Mount Royal University to explore and analyze the University of Calgary’s contributions to health care during the past five decades. Unfortunately, not all who were contacted could contribute to

this book due to the demands of their own research agendas, two unfortunate cases of illness, and one due to full immersion in the administrative duties of a departmental leadership position. Two other interested scholars had retired from their respective unit or left the University of Calgary to take up positions at other research universities.

Several colleagues, however, have stepped forward to contribute to the development and publication of this book, for which the editors are all warmly grateful. Since 2014, regular and frequent planning and research meetings have been held in the faculty room of the U of C Faculty of Nursing, on the main campus. Many administrators, colleagues, assistants, and students should be thanked here, as they seconded, fostered, and supported the project as it came to fruition. Throughout the research for this book, Paula Larsson joined the group of editors; first as a tireless and highly engaged research assistant, then as a scholar in her own right after graduating from the History Graduate Program at the University of Calgary and moving to the University of Oxford. David Monteyne, from the Faculty of Environmental Design, enticed a whole group of research students to help with archival material and image compilations for several chapters of the book.

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We would also like to record here our sincere thanks to the students in our classes, who have stimulated our thinking and research questions about this project, as well as Drs. Will Pratt and Mikkel Dack, for their kind provision of information and historical details on the history of the U of C Faculty of Medicine (now Cumming School of Medicine). Finally, we are deeply indebted to Emerita President Elizabeth Cannon for writing the preface to this volume, as well as to David Bright, a prominent professor of Canadian history at Niagara College in Ontario, for the intriguing context he has provided in the foreword to our book.

The Calgary History of Medicine Society offered a welcoming and supportive forum for several presentations on the contributions to health care and medicine made by the University of Calgary since its early inception, including the “History of Family and Community Psychiatry,” the “History of Nursing Collection,” and the “Establishment of the U of C Faculty of Medicine.” We extend our gratitude to the society’s president, Jim Wright, for making these fruitful exchanges and discussions possible. Furthermore, we are grateful to Ryan Perks for his meticulous copy-editing of this book. Our thanks go as well to the University of Calgary Press for the encouragement and invitation to submit this manuscript, and we wish in particular to thank Brian Scrivener, Helen Hajnoczky, and Alison Cobra, as well as two anonymous reviewers who commented painstakingly on our earlier manuscript.

Diana Mansell, Frank W. Stahnisch, and Paula Larsson  
*University of Calgary & University of Oxford*



## Preface

This book traces the life story of a satellite campus of the University of Alberta that began humbly in one building on the Provincial Institute of Technology and Art (now the Southern Alberta Institute of Technology) campus and grew into Calgary's own university. This history commemorates the hard work and the enduring spirit of the people of Alberta who built the University of Calgary and also formed it into the community health resource that it has become today. Many of these unconventional Albertans have advocated for the University of Calgary, the Foothills Medical Centre, and the Alberta Children's Hospital, in service to the health and well-being of everyone in the province. From Calgary City Council, to the Alberta Heritage Foundation for Medical Research, and the Government of Alberta, community support for direct health care and health research has never been lacking.

In 1966, an independent University of Calgary was born out of the needs of a surging urban population in Southern Alberta. We did not start out with a faculty of medicine or a faculty of nursing, but these quickly became priorities because of the high ratio of patients to physicians in Calgary. The 1964 Royal Commission on Health Services had previously identified this shortage of medical practitioners, and it suggested Calgary as an ideal site for a new medical school. Despite this compelling evidence, however, it took some persuasion from local cardiovascular physician Dr. Earle Parkhill Scarlett (1896–1982), Premier of Alberta Ernest C. Manning (1908–1996), and the Senate of the University of Calgary to convince all stakeholders that this was the right thing to do. Out of these efforts, the Faculties of Medicine and Nursing were eventually founded in 1967.

With the evolution of multi-disciplinary research through the years, our faculty members found that they could better support public health by working together, rather than in isolation. Academic journals and clinical

practice increasingly supported a more holistic view of preventive health initiatives and primary health care. This expanded definition of health now included—among other considerations—contributions from clinical psychology, kinesiology, environmental design, and veterinary medicine. Combining multi-disciplinary expertise has resulted in some impressive health breakthroughs: a recognition of Indigenous health needs; the positioning of nurses as leaders in the promotion of patient-centred care; an increased understanding of the connection between animal and human health; the expanded role of kinesiology in maintaining quality of life; and the opportunity to support accessibility for seniors with barrier-free environmental design, among many other examples.

At the same time that the university was building its team of educators, researchers, and administrators, Alberta was growing too. The population was expanding with the arrival of newcomers from across Canada and further afield. The postwar baby boomer generation was coming of age and moving from rural areas to Alberta's urban centres. In the face of these changing demographics in the province, the University of Calgary adapted its goals to suit the surrounding community. The university's ambitions have always been interwoven with the needs of Albertans, and that core belief endures to this day. For every life stage, from birth at the Foothills Medical Centre, to spending summers at Bike Camp in Mini U summer camps, to exploring new research in nutrition, to exercising at the Kinesiology Complex, and so much more, the University of Calgary is walking in step with Albertans to support their good health.

Thank you to Dianne Tapp, former dean of the Faculty of Nursing, for conceiving of this book, and to Diana Mansell (Faculty of Nursing), Frank Stahnisch (Cumming School of Medicine), and Paula Larsson (formerly of the Department of History), for bringing this campus collaboration to life. This book was compiled to show, in some small measure, how the University of Calgary was created by and for the people of Southern Alberta, and the goals of the university have always reflected back on the character of Albertans. Armed with this strong sense of community, the University of Calgary will continue to be guided by the needs of Albertans well beyond its hundredth anniversary.

Dr. Elizabeth Cannon  
*President Emerita, University of Calgary*

## Foreword

If it's true, as Benjamin Franklin (1706–90) claimed, that the only certainties in life are death and taxes, then a well-funded public health-care system is the umbilical cord that joins the two. In Canada, at least in the modern era, people dutifully, if not enthusiastically, pay taxes in the expectation that, among other things, their governments will provide, maintain, and renew a network of hospitals, physicians, nurses, and other front-line providers of medical treatment and care. Death, of course, cannot be permanently postponed, but for generations Canadians have come to believe and expect that their public health-care system should offer the best and most up-to-date services their accumulated tax dollars can reasonably afford. What happens in practice is, inevitably perhaps, messier and more complicated than that. How public moneys are allocated within the health-care system, to what end, and with what effect are critical questions that never find a final, fixed answer, but remain, rather, subject to ongoing public and political debate. Among the various institutions that have spearheaded this discourse at the provincial, regional, and local levels are the medical faculties and related departments within Canada's universities.

The seven chapters that comprise *Bedside and Community* shed light on one corner of this debate. Marking the fiftieth anniversary of the University of Calgary, this collection explores its many and varied contributions to the evolution of public health care in Calgary, and indeed beyond, since the mid-1960s. The authors embrace a variety of approaches and perspectives as they chronicle the University of Calgary's role across a wide range of topics, such as the changing function of the Faculty of Medicine within the public health-care system, shifts in the concept of nursing, controversies within Aboriginal health research, developments within clinical psychology and kinesiology, and the emergence of the Faculty of

Veterinary Medicine. While each chapter offers insight and analysis that the reader will find useful and interesting in their own right, taken as a whole they also raise some important questions about the nature and function of public health care in Alberta.

For example, is the public health-care system best thought of as a *process*, the *means* by which institutions and their constituent practitioners deliver aid, care, and comfort to their patients? If so, how should that process best be evaluated? How is the public's money being spent, and how efficient (in terms of outcomes) is the system as an operation? Alternatively, should the public health-care system be viewed as a *product*—that is, as something that can be measured in terms of overall outcomes over time and, also, at any given time? Can the health of a population in, say, 1970, empirically be compared to that of the parallel population in 2010? If so, what lessons can or should be drawn from such comparisons? Or, just to push the question a little further, should the public health-care system ultimately be analyzed as a series of *dynamics*, a network of relationships embedded within and arising from the sometimes coinciding and sometimes conflicting interests of the various parties involved, including (but not exclusively so) doctors, nurses, administrators, patients, politicians, policy-makers, and the public? If no clear and definite answers to such questions emerge from the chapters in this book, this is no slight to them. That they provoke the reader's need to consider, address, and propose at least tentative answers to such interrogations is to underline their significance at this time.

What also emerges from these chapters—from their different approaches, themes, and concerns—is the broad changes that occurred within the public health service from the 1960s to the present day. As is perhaps implied by the book's title, *Bedside and Community*, the fundamental shift was from *where* health care was delivered to *how* it has been conceived. Institutions such as hospitals have always been identified with the provision of treatment, in a remedial sense, but what arises from these essays repeatedly is the tension between cure and prevention. Is the public health-care system's primary function to treat patients—to stave off death, as per Franklin—or to prevent them from becoming patients in the first place? Again, there is no clear answer. What this book does make clear, however, is that the story of public health care in Calgary—and by extension, in Alberta—cannot be told as an upwards trajectory from failure

to success. Instead, as the editors note in the introduction, the historical record was “far from a gentle progression upwards to a pinnacle of success,” but instead featured many “sudden leaps forward and hesitant steps backward” (p. 9).

If this is true, then what the following chapters also reveal is that two decades in particular stand out as critical in the evolution of Alberta’s public health-care system. The first was the 1970s. Following the establishment of the University of Calgary’s Faculty of Medicine in 1967, the 1970s were, for the most part, years of growth and expansion. They witnessed such events as the Blair Report on Mental Health, the foundation of the Faculty of Environmental Design at the University of Calgary, the first undergraduate classes at the university’s Faculty of Medicine, the opening of a new Health Sciences Centre, the creation of the Stoney Health Centre, the first classes at the new Faculty of Nursing, the report of the provincial Task Force on Nursing Education, and the establishment of the Provincial Mental Health Advisory Council. Such a list of achievements, perhaps under recognized before now, is thrown into stark relief by the chapters that follow here. The 1970s were, in general, a time of turmoil and unrest in Canada, but the advances made in public health care also made the decade a pivotal era in Alberta’s history.

The second decade that stands out is the 1990s. These were more challenging years. In Alberta, amidst the spending cuts made by the Progressive Conservative governments of Don Getty (1933–2016) and Ralph Klein (1942–2013), plus the decision by the federal Liberal government under Jean Chrétien (b. 1934) to combine transfer payments to provincial post-secondary education, welfare programs, and health care under one single budget line, the 1990s quickly became an era of cutbacks and austerity. A consequent search for efficiencies, mergers, and rationalizations took their toll on the public health-care system. There was one positive result of this, however, as health-care providers now placed a new emphasis on prevention rather than cure. If the deliverers of health care were now under the hammer, maybe one response might be to lessen the number of people who, through lifestyle choices or a lack of knowledge, placed themselves needlessly at risk. What we see in the 1990s, then—as the following chapters make clear—is a shift in how public health care was perceived. For example, in 1994 the Calgary Regional Health Authority was established, later to be replaced by the broader Alberta Health Services in 2008. Also

created in this decade were the Institute of Aboriginal Peoples' Health, the Office of Gender and Equality, the Joint Doctoral Program in Psychology, and the switch from the Faculty of Sports Medicine to that of Kinesiology at the University of Calgary. These all reflected changes in tone, approach, and focus when it came to the delivery of and research into public health. Once again, as the editors point out in their concluding discussion, the effect was that the University of Calgary's Faculty of Medicine "went from a faculty that trained physicians *for* local communities to one that trains physicians *through* local communities" (p. 214).

This is a shift in emphasis, a shift in tense. From object to subject, from past to present. It is also, as the book's title once again underlines, a shift in locus: from the bedside to the community. In the end, the essays here are a testament both to what has been achieved in the realm of public health care over the past half-century and also what remains to be done. Whether the public necessarily gets the public health-care system it deserves—and that it has paid for—is moot, but it is up to that same public to demand that this system prevails. The chapters that follow play a critical role in informing the public of their duty in this regard.

Dr. David Bright  
*Professor of History, Niagara College, Ontario*



# Introduction

*Paula Larsson, Frank W. Stahnisch, and Diana Mansell*

The University of Calgary was established at a time of provincial population growth and urban expansion.<sup>1</sup> It had long existed as a secondary campus for the University of Alberta, but the education and health-care demands of the community led to the creation of the University of Calgary as an autonomous post-secondary institution in 1966, from its former status as the University of Alberta of (later “in”) Calgary (UAC—or “Calgary Branch”). This in turn laid the foundation for a second provincial faculty of medicine in the city of Calgary. The decision to form the University of Calgary was made almost sixty years after the foundation of the University of Alberta in Edmonton. Calgary historian Antony W. Rasporich (b. 1940) captivantly described this development in his pioneering book *Make No Small Plans: The University of Calgary at Forty*:

As an autonomous entity, inferior in no respect to the University of Alberta . . . the University of Calgary was an infant institution determined to challenge its older sibling. It joined a host of younger institutions of higher learning, twelve degree-granting universities born between 1954 and 1964, to bring the Canadian total to forty-four.<sup>2</sup>

Thus, the University of Calgary was born in the context of a wider shift toward higher education and learning within the country, and amid concerns over the increased health demands of a growing postwar population.<sup>3</sup>

The Calgary campus officially formed in 1966, and the next year it founded its own independent medical program. The medical campus was uniquely situated in the north of Calgary, directly attached to the new Foothills Hospital. Much like the medical community in the rest of the country, Calgary's Faculty of Medicine was positioned at the confluence of various medical traditions. The older Faculty of Medicine at the University of Alberta provided a basic guideline for the development of a new physician training program and helped to characterize the professional standards of knowledge and education required for medical practitioners in the province of Alberta. Yet being a young university gave Calgary an advantage over its older counterpart in that it allowed for the conscious design and incorporation of new ideas for translational and holistic medical practices into the training of its students. This is seen most clearly in the location of the Faculty of Medicine directly within the hospital setting. The resulting proximity of students to patient care ensured the opportunity for practical application of medical training throughout their studies. The focus on patient care began directly at the bedside for the future doctors and soon nurses of the University of Calgary.

Yet the focus on health training and health care did not stop at the physician training program or hospital practice. The structure of the university matured through the ensuing decades as new ideas blossomed in the public-health and medical disciplines. The University of Calgary responded with open discussion and expansion into new areas of health care, training, and research. New faculties were created to train students in nursing, psychology, kinesiology, environmental design, and eventually veterinary medicine.<sup>4</sup> Funding from the provincial government in the 1970s provided the seed for initial growth. Hospital and clinical bedside care were transformed with the addition of new research techniques and medical knowledge. The number of students grew steadily, as did the number of departments. By 2016, the number of students enrolled in the Faculty of Medicine—called the Cumming School of Medicine since 2014—was 2,554.<sup>5</sup> Today, the Faculty of Medicine has 7 full research institutes,<sup>6</sup> 3 research centres,<sup>7</sup> and 20 separate academic departments.<sup>8</sup> It is involved in multiple collaborative initiatives with local communities and

organizations, as well as in partnerships with other medical researchers and institutions, both in Canada and worldwide. Additionally, many more students and faculty members across the university as a whole are actively involved in health-care practice, research, or training programs.

This book looks at how the University of Calgary has contributed to health care, training and health research over the past fifty years. Each chapter forms a concise discussion of one major area in this narrative, shedding light on the evolution of the various faculties and health initiatives within the changing waters of health care in the province of Alberta. It is clear from these discussions that the university has evolved within the larger context of the Calgary community, consistently establishing networks of training, care, and research beyond institutional confines.<sup>9</sup> The story begins with the establishment of the Faculty of Medicine and an overview of the ideals on which it was founded. These founding concepts of bedside patient care were expanded and eventually replaced by new concepts of holism, wellness, and globalized health. As new officials stepped in to guide the progress of the university through a shifting political landscape, the focus on individual health was broadened to encompass larger health networks. These changes were often driven by different members of the university, and the contributions of such individuals are especially highlighted in this narrative, for they shaped the university's key responses to the local conditions and social contexts of the time. The various deans each had a unique influence on the focus of the university, and the many professors and researchers have exercised individual influence on the development of faculties, departments, and the school's overall mission.

Thus, the following history is not simply a discussion of the Faculty of Medicine. At the core of medical research at the University of Calgary is a vast network of different faculties, departments, projects, and people. The people themselves—the professors, students, and researchers—have all played key roles in creating personal connections between faculty members and the community at large. The students and their experience form an intimate piece of this overall process. As Robert James Eustace (1942–2013), president of the University of Calgary Students' Union, remarked at the introduction of the Calgary student centre in 1968:

At this time, I should say a few words about the building and the students. . . . We students of today want to play a part in society that is significant. We are asking to take a different role than was played by our predecessors. Not merely because we want to, but because we believe we can contribute something worthwhile and meaningful to the lives of everyone else, be they our next-door neighbours, or those in another country. We believe in human things. We believe that people are important; we believe love is important, and we believe in death too.<sup>10</sup>

Social concerns, student activism, and intellectual pragmatism contributed to the formation of the modern character of the university's student and faculty community. Its many deans and department heads all stepped into their positions with the goal of strengthening the institution and its programs. Yet change resulted from the efforts of many people—faculty members who fought hard for inclusive programs and policies, inspired scholars who proposed new avenues of medical research, practitioners who followed individual passion and changed systems of caregiving, education, and environmental interaction. Included throughout this narrative, then, are the many communities that stimulated purposeful debate on policies and programs within the university since its inception.<sup>11</sup> These people and their impact are an important part of the University of Calgary's contributions to health and health care in its first half-century.

This edited collection brings together narratives of health care, training, and research from across the university. Each chapter is written by authors who have influenced or experienced the focus in health research, education, prevention, or active care in several faculties throughout the past fifty years. Despite the diverse material covered in their respective chapters, they all speak to the interrelationship of the university with its many communities. Eschewing the traditional “top-down” approach of many institutional histories, these chapters reveal the impact of more than just the administration—they showcase the conversations between members of the university and local groups with others with a vested interest in the health of Alberta. The voices of deans and department chairs are presented beside those of professors, physicians, nurses, university researchers, students, members of Indigenous councils, and government

officials. This approach reveals the web of interaction that shaped the university as it grew and reformed itself in the late twentieth century.<sup>12</sup>

The first chapter in this volume places the Faculty of Medicine within the larger context of provincial medicine throughout the last fifty years. This story is not always one of progress, but it is always one of change. Frank W. Stahnisch outlines how the University of Calgary's Faculty of Medicine began as a new medical school, one determined to reach beyond its junior position in the Canadian institutional order.<sup>13</sup> These early goals were obtained by integrated teaching in medical practice and a focus on training in family care, to ensure the newly trained students would have a practical understanding of primary care for the communities in which they would be working. The interdisciplinary teaching and active learning style of this program proved a winning combination, and the faculty expanded significantly in the 1970s.<sup>14</sup> These expansions were mainly in research areas, though the Calgary campus would soon be integrated into the larger network of health-care bodies within the province. Subsequent developments in pediatrics, neurology, public health, and other fields followed. A need-response feedback characterized the relationship between the faculty and the larger community.<sup>15</sup> The Faculty of Medicine's status as a new school of medicine allowed for a degree of flexibility that facilitated adaptation to the changing structures in the provincial medical context.

The second chapter of this volume takes the analysis of the University of Calgary Faculty of Medicine one step further, into the area of Indigenous health. Despite the progressive process outlined in chapter 1, Paula Larsson and Wilfreda E. Thurston show in their chapter that the Faculty of Medicine has not always succeeded in its efforts to provide care to local communities. These efforts began as a promising initiative, with an attempt at providing clinical care to the Stoney Nakoda tribe (also known as Stoney or Îyârhe Nakoda) in Southern Alberta. Yet these hopeful beginnings were soon halted by tensions between the two parties, and any official focus on Aboriginal health in the faculty was abandoned for the next twenty years. The reintroduction of concerns over Aboriginal health, including clinical care programs, training and teaching Aboriginal students, or instituting Aboriginal health research, was a gradual process spearheaded by individual faculty members rather than the administration.<sup>16</sup> These individuals have pushed to re-implement concern for Aboriginal health in the mandate of the Faculty of Medicine, as well as to

implement equal-opportunity programs at the university. These initiatives have more recently been accompanied by numerous independent projects led by individual members of the faculty.

Chapter 3 of this volume outlines the founding and subsequent development of the Faculty of Nursing, which coincided with that of the Faculty of Medicine. Diana Mansell was a lecturer and senior lecturer in nursing at the University of Calgary from 1986 to 2015. She documents how the Faculty of Nursing initially had a similar focus on bedside care and practical nursing care when training early students. As the program matured, the faculty's attention shifted to health education and preventative medicine. Nurses realized the need for everyday care in the form of individual patient health maintenance. The nursing program thus emphasized the promotion of a healthy lifestyle, with a stress on the conservation of human dignity in care. Much like the Faculty of Medicine, the nursing training program has approached clinical health care and research with an eye to both discipline paradigms and local needs.<sup>17</sup> The Faculty of Nursing soon extended to incorporate a graduate program, and it has since expanded into broader public-health initiatives and community-empowerment strategies. Despite the many changes over the last half-century, this faculty has nonetheless consistently emphasized a holistic approach to health—including medical care, treatment, maintenance strategies, and individualized approaches.

Continuing in the vein of holism in clinical care, in chapter 4 Hank Stam and Lorraine Radtke outline the history of psychology at the University of Calgary. As neuroscience was introduced and recognized as a priority for the university, so, too, was psychological health and research. The 1968 Blair Report on mental health in Alberta established health psychology as an area of research in the Calgary medical school, which was later confirmed by inroads into health, mental health, and psychopathology. Although this field was characterized by a wholesale acceptance of biomedical models for health psychology, researchers and clinicians at the University of Calgary—Hank Stam among them—gave early criticism of this approach and sought to bring new theoretical methods to the discipline. Discussion of the role of clinical psychology within the profession in North America was a keystone of the establishment of this discipline at the University of Calgary. The resulting program is one that has deep community ties, with an emphasis on practicum placements, collaborative

projects, and the direct involvement of community members in student examining committees.

Stepping away from the clinical focus, kinesiology professor Patricia K. Doyle-Baker discusses the creation of physical education and kinesiology programs from the perspective of a “then” and “now” comparison. Her chapter outlines how early understandings of the interchanges between movement and health are still present in the “now” of professionalized medical kinesiology. The Faculty of Kinesiology at the University of Calgary incorporates these early understandings of exercise and health in a variety of initiatives. The discipline began with a focus on physical education, but the hosting of the 1988 Olympic Games in Calgary helped to shape a deeper interest in athletic therapy, recreation, and fitness in response to the health demands of the community.<sup>18</sup> The bachelor of kinesiology resulted, and this was soon followed with the establishment of the Faculty of Kinesiology. In 2003, the Sports Medicine Centre and the Human Performance Lab merged, resulting in a professional kinesiology practice that incorporated a vast number of approaches to movement and health. Performance, function, therapy, and treatment were all combined into the modern kinesiology faculty, creating a bridge between the then and now.

While most of this volume is devoted to the history of direct health interventions at the University of Calgary, the final two chapters illustrate two more recent faculties, both of which focus on indirect interventions. For example, chapter 6 focuses on one of the newest disciplines within the context of health care in Canada, that of environmental design. The Faculty of Environmental Design understands medical care in a broader environmental framework, emphasizing how design can promote and regulate human health. This faculty initially began with an idea of “harmony” between humans and the environment, a notion that was recognized early on to have many benefits for human wellness. The faculty was established as a unique institution at the university in the 1970s. Environment was thereafter reconceived as a controllable and alterable entity that could be utilized as a tool for health promotion and care. This faculty has an incredibly wide range of programs and activities, from projects that target individual human experience, larger architectural designs, and, ultimately, the creation and alteration of public spaces. Through the Faculty of Environmental Design, the University of Calgary has broadened its

initial focus on holistic care to include a more dynamic understanding of the individual within a network of interactions that can affect health and well-being.

Lastly, the discussion of the foundation and growth of the Faculty of Veterinary Medicine outlines another indirect approach to human health, which in chapter 7 is defined as the “One Health” approach. One Health incorporates a translational exchange of knowledge between human biomedical research and veterinary medicine. The interest in holistic approaches to medicine shared by the other departments is therefore continued in the development of veterinary medicine at the university. Human medicine and veterinary medicine were initially separate disciplines, with discrete courses and areas of study.<sup>19</sup> The growth of this field in Alberta was suddenly stimulated in the early 2000s by animal proximity and consumption. In particular, public fear of bovine spongiform encephalopathy,<sup>20</sup> the SARS and West Nile viruses, and “bird flu” all contributed to increased concern with human-animal health interactions. The notion of a One Health ideology followed these fears, providing a perspective on health that goes beyond simply the individual and human condition. A new focus was introduced, one that incorporated animals, the environment, and individual lifestyle into the overall health-care framework. This framework was established as a global one and it seeks to work toward an optimal combined health for people, animals, and the environment.<sup>21</sup> It has also brought the University of Calgary into globalized collaborative projects, which will hopefully structure future research programs.

Histories of educational institutions are often compiled in commemorative fashion to mark the passing of time and the growth of a community.<sup>22</sup> Medicine and nursing in Alberta have had their share of these histories, one of the largest and most comprehensive being Robert Lampard’s very extensive compilation on Alberta’s medical history.<sup>23</sup> That work incorporates not only an in-depth discussion of the various changes in Alberta’s medical landscape from the turn of the twentieth century, but also contains, within its voluminous seven hundred pages, numerous biographies of medical actors from the provincial past, as well as a comprehensive discussion of all the major medical milestones achieved in the past century. Other notable works covering similar subject areas in the history of health care in the province include numerous publications on the history of nursing in Alberta. The most notable of these works include



nursing historian Tony Cashman's early *Heritage of Service* (1966), which was followed a little more than a decade later by Irene Steward's *These Were Our Yesterdays* (1979).<sup>24</sup> Both works provide personal and professional insight into the nursing community across Alberta. In 1998, Janet Ross-Kerr published her monograph titled *Prepared to Care: Nurses and Nursing in Alberta*. This academic history took a systematic approach, incorporating a discussion of major political and social changes and their impact on provincial nursing practice.<sup>25</sup>

This volume fits in best with other institutional histories, as it seeks to provide critical evaluations of the major developments within the University of Calgary since its foundation. At times, it emphasizes specific health-care conditions and advances, while at others it recognizes the faults of the past half-century and the areas that have been neglected. Rehabilitation researcher Elise Corbett's 1990 work on the history of the Faculty of Medicine at the University of Alberta, for instance, is another work published with an anniversary in mind.<sup>26</sup> Other notable institutional histories that have recently been published include historian Edward Shorter's large overview of medicine at the University of Toronto and its academic hospitals, and historian David Wright's *SickKids: The History of the Hospital for Sick Children*.<sup>27</sup> In contrast to these institutional histories, our focus in *Bedside and Community* is on collaboration, and thus we have compiled different contributions from a varied cast of scholars who sought to create a dynamic depiction of the diversity and variability of medical research at the University of Calgary. Instead of focusing on simply one faculty, this work seeks to provide a nuanced and amalgamated discussion of medical care, research, and training throughout the university setting, written in a spirit of reflexivity and self-evaluation.

This history goes beyond simple growth to illuminate the sometimes difficult path that led to the current atmosphere of inter-departmental and inter-faculty collaborations in health research at the University of Calgary. This path was far from a gentle upward progression to a final pinnacle of success. Indeed, the path is only just beginning for this institution after its first fifty years. Its history has seen sudden leaps forward and hesitant steps backward. In some instances, change came naturally and open-minded approaches to medicine governed the administration. Yet there are many points in this story that reveal that health research at the University of Calgary was far from a unified body. There have been clashes

over how to tackle problems of health, health care, and wellness. We think that this story is not one of relentless progress but, rather, one of relentless conversation. The members of the university have had a constant dialogue surrounding their various disciplines—with each other, the students, and the community at large. Through practical care, collaborative projects, research, and a relentless concern for improving health, the University of Calgary has given fifty years of medical contributions to people at all levels, both *at the bedside and in the community*.

## NOTES

- 1 See chapter 1 in this volume by Frank W. Stahnisch for further discussion of government fears over population growth and the increased demands on the health-care system. For further comparison, see Emmett M. Hall, ed., *Royal Commission on Health Services: 1964/Royal Commission on Health Services: 1965* (Ottawa: Government of Canada, 1964 and 1965), 2 vols.
- 2 Anthony W. Rasporich, *Make No Small Plans: The University of Calgary at Forty* (Calgary: University of Calgary, 2007), 3; quote from 28.
- 3 Ibid., 126–43.
- 4 We originally hoped to include a chapter on the history of the Faculty of Social Work, but unfortunately, finding an author in this area proved to be difficult after a faculty historian had to decline due to an over-commitment to other projects at the time of the University of Calgary’s fiftieth anniversary.
- 5 See “Summary by Faculty Student Enrolment, Fall 2015,” Registrar’s Office, University of Calgary, <https://oia.ucalgary.ca/files/oia/2015-16fb-2-2-sum-x-faculty.pdf> (accessed 1 August 2019).
- 6 The seven research institutes are: the Alberta Children’s Hospital Research Institute for Child and Maternal Health; the Arnie Charbonneau Cancer Institute; the Calvin, Phoebe, and Joan Snyder Institute for Chronic Diseases; the Hotchkiss Brain Institute; the O’Brien Institute for Public Health; the Libin Cardiovascular Institute of Alberta; and the McCaig Institute for Bone and Joint Health.
- 7 These include the Centre for Advanced Technologies, the Calgary Centre for Clinical Research, and the Clinical Research Unit.
- 8 The twenty official academic departments listed on the Cumming School of Medicine webpage are: Anaesthesia; Biochemistry and Molecular Biology; Cardiac Sciences; Cell Biology and Anatomy; Clinical Neurosciences; Community Health Sciences; Critical Care Medicine; Emergency Medicine; Family Medicine; Medical Genetics; Medicine; Microbiology, Immunology, and Infectious Diseases; Obstetrics and Gynaecology; Oncology; Paediatrics; Pathology and Laboratory Medicine; Physiology and Pharmacology; Psychiatry; Radiology; and Surgery.

- 9 Don Smith, *Calgary's Grand Story: The Making of a Prairie Metropolis from the Viewpoint of Two Heritage Buildings* (Calgary: University of Calgary Press, 2005), 257–61.
- 10 Robert Eustace, "Students' Union President," in *Tallystick Yearbook*, ed. Student's Union Calgary (Calgary: University of Calgary, 1968), 177.
- 11 For comparison, see Baldwin P. Reichwein, *A Century of Public Health Services in Alberta* (Edmonton: Alberta Public Health Association, 2007).
- 12 Aritha Van Herk, *The Age of Audacity: 50 Years of Ambition and Adventure at Calgary's Own University* (Calgary: University of Calgary Press, 2016), 3–5.
- 13 For comparison, see Brian Hodges, "The Many and Conflicting Histories of Medical Education in Canada and the USA: An Introduction to the Paradigm Wars," *Medical Education* 39, no. 6 (2005): 613–21.
- 14 See also Henry Mandin, Peter Harasym, Chris Eagle, and Mo Watanabe, "Developing a Clinical Presentation Curriculum at the University of Calgary," *Academic Medicine* 70, no. 1 (1995): 186–93.
- 15 Rasporich, *Make No Small Plans*, 3.
- 16 Mary-Ellen Kelm, *Colonizing Bodies: Aboriginal Health and Healing in British Columbia, 1900–50* (Vancouver: University of British Columbia Press, 1999), 55–77.
- 17 Boschma, *Faculty of Nursing on the Move: Nursing at the University of Calgary, 1969–2004* (Calgary: University of Calgary Press, 2005): 18–27.
- 18 David Whitson, "Bringing the World to Canada: 'The Periphery of the Centre,'" *Third World Quarterly* 25, no. 7 (2004): 1215–32.
- 19 This emerged also as an organizational and planning problem for the U of C's new Faculty of Veterinary Medicine in its initial stages. See, for example, Rebecca Aronauer and Janice Paskey, "At Long Last, Harvard Hires Endowment Manager; U. of Calgary loses Dean who was to help create Vet School," *Chronicle of Higher Education*, (28 October 2005): A8.
- 20 Michel C. F. Shamy, "While England Ate: Government and the Risk of BSE, 1979–1996," in *The Proceedings of the 21st Anniversary History of Medicine Days Conference 2012: The University of Calgary Faculty of Medicine, Alberta, Canada*, ed. Aleksandra Loewenau, Kelsey Lucyk, and Frank W. Stahnisch (Newcastle upon Tyne, UK: Cambridge Scholars Publishing, 2015), 2–27.
- 21 Abigail Woods, "One Health, One Medicine: Reconnecting Humans and Animals within Medical History," *Western Humanities Review* 69, no. 3 (2015): 148–69.
- 22 For a recent example, see Edward Shorter, *Partnership for Excellence: Medicine at the University of Toronto and Academic Hospitals* (Toronto: University of Toronto Press, 2012).
- 23 Robert Lampard, *Alberta's Medical History: Young and Lusty and Full of Life* (Red Deer, AB: published by the author, 2008).
- 24 Tony Cashman, *Heritage of Service: The History of Nursing in Alberta* (Edmonton, AB: Alberta Association of Registered Nurses, 1966); Irene Steward, *These Were Our Yesterdays: A History of District Nursing in Alberta* (Calgary: D. W. Friesen, 1979).

- 25 Janet Ross-Kerr, *Prepared to Care: Nurses and Nursing in Alberta, 1859 to 1996* (Edmonton: University of Alberta Press 1998).
- 26 This history was published in the commemoration of the seventy-fifth anniversary of the Faculty of Medicine at the University of Alberta in Edmonton. See Elise Corbet, *Frontiers of Medicine: A History of Medical Education and Research at the University of Alberta* (Edmonton: University of Alberta Press, 1990).
- 27 Shorter, *Partnership for Excellence*; David Wright, *SickKids: The History of the Hospital for Sick Children* (Toronto: University of Toronto Press, 2016).

# The Faculty of Medicine and its Response to the Changing Health-Care Context in the Province of Alberta, 1966–2016

*Frank W. Stahnisch*

The new University of Calgary Faculty of Medicine was a result of major administrative and political changes in the provincial health-care system in Alberta.<sup>1</sup> After it was established in 1966, the faculty soon became a reflexive and autonomous actor, as can be seen in its responses to the decisions and plans made by the government of Alberta.<sup>2</sup> This relationship built on the opportunities provided by health-care institutions and networks in the province, along with community requests and decisions at more local levels. This chapter will provide a historical overview of the major milestones from a half-century of clinical and scientific developments in the University of Calgary's Faculty of Medicine, and place them in the larger context of the advances made in the provincial health-care system.

## The University of Calgary's Faculty of Medicine as a New Canadian Medical School

The medical landscape in North America has seen many rises over the previous two centuries of innovation.<sup>3</sup> For instance, medical understanding has transitioned from knowledge with roots in the earlier nosological

and Enlightenment traditions and diagnoses of miasmatic illnesses,<sup>4</sup> to a professionalized and scientific body of knowledge. The role of Canadian physicians in this transformation is a subject little discussed in the wider literature on the history of medicine.<sup>5</sup> Yet Canada has a rich history incorporating dual influences from its colonial parent, Britain—such as nosology, medical education, and military surgery—and its intellectual neighbour, the United States—bacteriology, public health, and more often biomedical research. These two medical cultures have stimulated a unique Canadian approach to medicine, perhaps best represented by clinical pathologist Sir William Osler (1849–1919) at McGill University.<sup>6</sup> Osler and his followers shaped an important historical tradition of standardized clinical methodology and strong physician engagement provided by medical researchers actively striving for overall health-care improvement within a larger medical framework. Canadian medicine has thus grown from an advantageous position at the crossroads of both heritage and innovation.

The University of Calgary developed a similarly unique position within the Albertan medical spectrum,<sup>7</sup> with Alberta's first medical programs created in the provincial capital of Edmonton at the start of the twentieth century. The Faculty of Medicine at the University of Alberta was built in 1913, and it soon enrolled its first medical students.<sup>8</sup> As the century progressed, Alberta's population further swelled. More and more immigrants arrived and settled in rural areas on the prairies and in the province's next-largest city, Calgary.<sup>9</sup> The resulting need for physicians pushed the development of a new university in Calgary, with a faculty of medicine to train family physicians to fill the need for family medical care in Calgary and the rural areas of Alberta. At its very foundation, the faculty of medicine in Calgary was created with an outward focus on the care of patients and contributions to the larger community.<sup>10</sup> In 1967, it began its medical training program with the goal of establishing a community of doctors who would be accessible to Alberta families and could give effective care within the community sphere. Over the next fifty years, the medical contributions of the University of Calgary have echoed this early outreach philosophy.

The construction project for the Foothills Provincial General Hospital at St. Andrews Heights in northwest Calgary commenced in 1962, which was first intended as a stand-alone city hospital without specific academic goals. When the hospital eventually opened its doors to the public four years later, it was the largest new clinical building in North America. The

Foothills Hospital was created with great public and medical aspirations, which—together with the burgeoning plans to also build a medical school in Calgary—culminated in the attempt to build a “Mayo Clinic North,”<sup>11</sup> both in its health-care functions as well as its opportunities for clinical research. This was strikingly exemplified in the surgical performance of a first kidney transplantation at the Calgary Foothills Hospital in 1971 by a team led by the British-trained Iraqi surgeon Dr. George Abouna (1934–2016).<sup>12</sup> A parallel degree program in nursing was set up, together with units on main campus in September 1966, shortly after the opening of the integrated (medicine and nursing) Foothills Medical Centre (FMC). The nursing program soon moved out from the FMC to establish a new medical centre on “the other side of 16th Avenue,” after negotiations with the Alberta Association of Registered Nurses (AARN) came to an agreement with the young autonomous University of Calgary.<sup>13</sup> Over the course of its first twenty-five years, the seven-hundred-bed community hospital soon developed into a regional thousand-bed referral centre, with internationally known clinical, teaching, and scientific research units.<sup>14</sup>

In direct reference to the ongoing accomplishments of the Mark O. Hatfield Clinical Research Center, at the National Institutes for Health Research in Bethesda, Maryland—which opened in 1948<sup>15</sup>—the University of Calgary’s Faculty of Medicine prided itself on having the latest, top-notch medical technology and maintaining accepted North American standards in the organization of its clinical wards and patient rooms. This was indeed a noticeable achievement, since the building process had been underfunded from the very beginning and various money-saving initiatives were employed to “build it cheaper.”<sup>16</sup> Once established, however, the FMC—like the academic Edmonton hospitals before it—soon came to attract notable North American and European physicians as faculty, as well as clinicians, administrators, and medical educators. This occurred even though “the Dean faced the problem of competition from all the other medical schools in Canada.”<sup>17</sup> The continuous reports to the FMC’s Board of Governors pointed out the increase in registrants each year, proudly declaring “an average of 119.6 new doctors who registered for practice each year . . . . The number of practising doctors in the Province has increased from 583 in 1931 to 1,513 in 1964.”<sup>18</sup>

Yet even though the number of doctors had steadily increased, Alberta’s massive population growth threatened to widen the gap in the

physician-population ratio ever further.<sup>19</sup> This development featured centrally in the 1964 report of the Royal Commission on Health Services compiled by Supreme Court judge and policy advocate Emmett Matthew Hall (1898–1995). The report identified a gross shortage of doctors, specifically in anticipation for the future need to care for the “baby boomer” generation in postwar Canada.<sup>20</sup> Between 1964 and 1966, various studies were conducted to explore the possibility of establishing an independent medical school at the University of Calgary.<sup>21</sup> However, the need for additional education of medical students and the provision of registered physicians in Alberta did not result in a fast increase of available doctors through the activities of the Foothills Provincial General Hospital Board at the time.<sup>22</sup>

The Foothills Hospital was brought into service in 1966, independent of the previous planning processes, while the Senate of the newly established University of Calgary fervently supported the creation of a new faculty of medicine in the south of the province of Alberta.<sup>23</sup> Eventually, in 1966 the provincial government gave final permission that the medical teaching centre (now known as the Health Sciences Centre; see figure 1) would be built as part of the Foothills Hospital site on the northwestern outskirts of the city (now a part of the downtown district), overlooking Parkdale, along the north bank of the Bow River.<sup>24</sup>

The 1964 report of the Royal Commission on Health Services had already singled out the city of Calgary as a favourite site for the latest Canadian medical school. It foresaw that the projected need for physicians was making it necessary to maintain a ratio of approximately one physician per 870 people. The commission made specific recommendations for the development of new basic science facilities to educate future physicians.<sup>25</sup> Financial resources were made available from the Canadian Health Facilities Development Fund, which provided up to half of the construction costs for the recently planned medical schools. In 1966, following two decades of intensive political discussions, the University of Calgary received independent status as a post-secondary institution,<sup>26</sup> while the idea for a new medical school in Southern Alberta was also projected to engage innovative undergraduate and continuing medical education programs.<sup>27</sup> The newly created U of C undergraduate medical education program drew on both relevant knowledge and a task-specific reasoning process to encourage clinical problem-solving.<sup>28</sup> Describing this process in their review of curriculum reform, medical psychologists Frank Papa and Peter





FIGURE 1. Photograph of the opening of the Health Sciences Centre at the Foothills medical campus with Dr. Bill Cochrane and other members of the university leadership, 1970. Courtesy of the University of Calgary Archives, 84.005\_02.49.

H. Harasym outline the approach taken by the University of Calgary when developing its innovative curriculum as follows:

Reform efforts began with the notion that clinical proficiency could be measured only in terms of clinical problems. Therefore, initial efforts centered around the identification of the ways that patients present to physicians (e. g., with chest pain, dyspnea, headache, unconsciousness).<sup>29</sup>

In the late 1960s, three other innovative medical schools were started across Canada. They were located in the city of Hamilton in Ontario

(McMaster University), at Sherbrooke, Quebec, near Montreal, and in St. John's, Newfoundland (Memorial University).<sup>30</sup> Dr. Earle Parkhill Scarlett (1896–1982), a former member of staff in the Calgary Associate Clinic and an engaged internist and cardiovascular physician in the local medical community, was chosen by the Alberta Medical Association (AMA) to champion the idea for a new faculty of medicine in Calgary.<sup>31</sup> Dr. Scarlett had previously been the chancellor of the University of Alberta in Edmonton (from 1952 to 1958), and had actively endorsed the visionary plan for the creation of a second medical school in the affluent Western Canadian province. He pointed out that a second medical school would not draw away critical resources from the traditional “mother faculty” in the city of Edmonton, in Northern Alberta.<sup>32</sup>

In 1965, a report by a special committee to the Board of Governors and the president of the University of Alberta in Calgary outlined a program for the development of Calgary's new medical school. At the same time, the minister for health in Alberta, Dr. Joseph Donovan Ross (1911–84), of the Social Credit Party, publicly announced in October of 1965 \$25 million construction plans that were based on previous on-site visits and meetings with the local medical community in the city of Calgary—sometimes even in rather unexpected places, as historian Antony W. Rasporich noted in a published interview with Dean William (“Bill”) Arthur Cochrane (1926–2017):<sup>33</sup>

I [Bill Cochrane] took him [the new minister of health] out to the rocks on the Bow River and Bowness Park with a case of beer, and we discussed for several hours the issue. And about two or three weeks later the Board of Governors had a letter . . . indicating \$25 million would be available for the medical school, period.<sup>34</sup>

In 1966, Premier Ernest C. Manning (1908–96)—on behalf of the provincial government—sent a letter to the University of Alberta in Calgary indicating the government's wish for the university to give “immediate consideration to developing a Faculty of Medicine appropriate to the above circumstances [to train family physicians] and coordinated with the Foothills facilities.”<sup>35</sup> The Board of Governors of the University of Calgary finally approved the creation of the medical school in February of 1966.<sup>36</sup>

Following the opening of the Foothills Hospital to the Albertan public, a plaque was erected in the patients' entrance hall, quoting Earle Parkhill Scarlett's thoughtful reflections on the new hospital: "Within these walls life begins and ends. Here are reverence for life, a sense of the dignity of man, the distilled medical and scientific wisdom of years and a shelter from illness."<sup>37</sup>

Dr. Scarlett was also an active supporter of Dean Cochrane. He was especially supportive of his plans to focus the efforts of the new medical school on community and family medicine, with the goal of producing "doctors who would do primary care" and "to provide an environment in which specialization may take place as well as for the advancement of medical science."<sup>38</sup> Also appointed on 1 July 1967, was the internist Dr. John Dawson (b. 1925?) as the associate dean in the Faculty Office of Medical Education. Dr. Dawson oversaw the new resident teaching programs that were established in conjunction with the traditional Calgary hospitals.<sup>39</sup>

The advisory committee—which was formed in August 1965 as the Special Committee for the Board of Governors and the President, University of Alberta in Calgary—braced for an expanded development of the Foothills Medical Centre. The committee endorsed this project in its communication with the provincial government, even against some considerable distrust and criticism from the established Calgary medical community. Particularly the traditional medical institutions, such as the Calgary General Hospital and the Holy Cross Hospital in the downtown district, feared that the new medical centre would draw important resources away from them.<sup>40</sup> The same was true for certain critical public views, which also upheld "the assumption that the tertiary care hospital is the best place to teach medical students has long been disputed," while "the attitudes of too many instructors in the tertiary care hospitals toward their colleagues who provide primary and secondary levels of medical care can, on occasion, be supercilious and derogatory, quite unsuitable in those who are to be taken as role models by students."<sup>41</sup>

However, when the University of Calgary Faculty of Medicine was founded in 1967, the overall benefits provided by the proliferation of desperately needed additional physicians in the fast-growing southern part of the province were superior arguments.<sup>42</sup> The faculty's undergraduate curriculum was innovatively based on organ systems, in order to "espouse the objective of student responsibility for self-education to scrutinize their

programs continuously and carefully to assure them that they are in fact consistent with this objective.”<sup>43</sup> The curriculum henceforth encouraged interdisciplinary teaching and active learning, with an equal split of didactic sessions and small-group, case-based learning that attempted to move away from the previous status quo in medical education.<sup>44</sup> Members of the medical education program repeatedly emphasized this point, outlining the “drawback [that] the [traditional] organization of course content” led to an “intellectually isolated” teaching and testing method.<sup>45</sup> Early faculty member Larry Fisher describes this problem in his overview of the medical school and its mission:

Each department exercised complete control over the courses for which it was responsible, and since many topics (e.g. the menstrual cycle) could be—and were—taught from the point of view of any one of several disciplines (for the menstrual cycle: anatomy, endocrinology, physiology, gynaecology, pharmacology) there were frequent duplications of content. . . . Each department tended to be an independent kingdom jealously guarding its space, budget, and curricular time, and seeking to extend them, so that the overall curriculum was conventionally set and modified by a general tug-of-war between departments instead of by a collaborative effort made in the best interest of the students.<sup>46</sup>

The University of Calgary’s Faculty of Medicine formally took in its first class of undergraduate medical students in 1970.<sup>47</sup> However, the respective teaching facilities had not been finalized. This exceptional class of incoming students, then, which appropriately labelled itself as “the guinea pigs,” could only graduate after an official (though not intended) four-year period.<sup>48</sup> Such construction delays—which also made it necessary for much of the educational activities to occur in lecture halls and seminar rooms on main campus—had already been experienced with the building of the Foothills Hospital itself, as an article in the *Calgary Herald* on 8 May 1963, intriguingly pointed out:

A general hospital is, in [the hospital administrator] Mr. [L. Reginald] Adshead’s [1911–2000] words, “one of the most difficult

structures to design.” It contains “many complex installations” and is not the same as “a warehouse, office building or hotel.”<sup>49</sup>

At a time when about five thousand Calgarians sought admission to the city’s two major hospitals, the Calgary General Hospital and the Holy Cross,<sup>50</sup> it was particularly the shortage of steel that delayed the construction of the main skeleton frame for the Foothills Hospital by about one year. Around 7,000 tons of steel was needed for the building to be finally completed, while the costs went up to \$92 million in building expenses for the Foothills Hospital and Tom Baker Oncology Centre together. For nearly a decade, the Tom Baker Oncology Centre (i.e., the Cancer Centre) remained an independent health-care institution—named after the health-care educator Thomas D. Baker (1910–97), who had acted as the chairman of the Alberta Cancer Board from 1967 to 1981.<sup>51</sup> It formally became affiliated with the University of Calgary’s Faculty of Medicine in 1976, in order to carry out oncological research and education in cancer treatment in a modern interdisciplinary arrangement.<sup>52</sup> The development of the clinical care and medical science facilities in the first decade of the Foothills Hospital’s operations proved to be much more expensive than the figure originally earmarked in the new hospital and medical faculty’s budgets.<sup>53</sup>

In order to preserve the budget and stabilize the challenging economic situation, Alberta businessman Alvin Libin (b. 1931) was brought in as an external advisor on a government committee that served as a “watch dog” over the provincial budget allocation. Later on, in 1979, Mr. Libin—whose Balmon Holdings Ltd. oversaw a nationwide franchise of nursing homes—was also elected as the board’s chairman. In this capacity, he oversaw the continuing stream of financial issues, which the hospital administration had to face under the long leadership of Ralph Coombs (b. 1931?) between 1977 and 1991—including the creation of adequate teaching facilities, the juxtaposition of clinical wards and laboratories, as well as basic building arrangements for hygiene, electricity, and water supplies.<sup>54</sup>

Forming part of the three newly created medical faculties, together with McMaster University in Ontario and Sherbrooke University in Quebec, Calgary’s medical school prided itself on being one of only two three-year medical programs in Canada (after Sherbrooke had turned back to the traditional four-year model, only McMaster and Calgary remained as shorter programs). Dean Cochrane outlined the philosophy of

the program in a journal article published in 1986, declaring that the MD following undergraduate medical training would only be given “on the condition that the student fulfilled two further years of graduate training in one of the three programs” of internal medicine, surgery, and family medicine.<sup>55</sup> This meant that through three years of undergraduate training and the supplementary two years of graduate studies, “the graduate either would be a specialist in family practice or could be considered as having completed two years towards the four-year training requirement of The Royal College of Physicians and Surgeons of Canada (RCPSC) for specialty training.”<sup>56</sup>

Initially the new medical faculty was expected to focus exclusively on the education of family physicians from a community-based perspective and in conjunction with the medical training facilities of the local hospitals.<sup>57</sup> The University of Alberta’s governing body previously had only given its approval to the opening of a sister medical faculty in Calgary, under the condition that the traditional medical faculty in Edmonton would hold the clinical and basic research prerogative and not face any financial cuts to its budget for substantial national and international scientific activities. During the beginnings of the new medical school, this particular organization left just the rather marginal fields of medical education, communication, and medical psychology as research areas for the Calgary faculty. This limitation was itself reflected in the large group of psychologists and teaching staff hired in the 1970s to pursue research on “problem-based learning” initiatives, a research area in which the University of Calgary gained increasing national recognition.<sup>58</sup> Research then extended to the outcomes of early clinical involvement of Calgary medical students and the reframing of the physician-patient relationship in community- and family-based care paradigms. The latter research area, for instance, was pioneered by Thomas (“Tom”) Saunders (1922–2008), the founding chair of the Department of Family Medicine,<sup>59</sup> which antedated the creation of the medical faculty as a functional inter-hospital program between the Calgary General Hospital and the Foothills Medical Centre since 1966. It was the faculty’s key objective “to produce doctors specializing in family medicine who will act as primary contact physicians and as co-ordinators of the activities of all members of the health team in the care of their patients.”<sup>60</sup> The founding organizers declared that “our goal is that half of the graduates will enter this specialty; a level, which we realize, is a high one.

However, the conviction is firmly held that good comprehensive care by all members of the health team is based upon the co-ordinating activities of the specialist family physician.”<sup>61</sup>

It was only in 1971, after the first class of students had been admitted to the new medical school in Calgary, that the Family Medicine Residency Program became firmly established and physically located at the Foothills Hospital. This planning process occurred in the comprehensive preparation for the first clinical clerks (the third-year medical students of the time) to begin their practical medical duties on the wards of the Foothills Medical Centre in Calgary.<sup>62</sup>

## The University of Calgary’s Faculty of Medicine Integrates into a Network of Health-Care Bodies in the Province of Alberta

When exploring the diverse faculty developments that happened in Edmonton and Calgary during the 1960s, it is important to also consider the addition of a third Albertan university and its contribution to the changing health-care contexts in the province. The University of Lethbridge was founded one year after the University of Calgary, in 1967, and soon incorporated programs in nursing, health science, and experimental psychology.<sup>63</sup> In the century since the foundation of the University of Alberta in 1908, the three university research centres in Alberta—in conjunction with a network of smaller post-secondary institutions and university colleges since the 1960s—offered a much more solid and vibrant landscape in the biomedical sciences by incorporating areas from nursing care, public health, clinical psychology, and environmental health, etc. This is particularly visible in the universities’ association with the provincial programs of Alberta Health Services (the recently combined health-care system that integrated the former health regions), created on 15 May 2008, by a decree of the minister of health and wellness, Ron Liepert (b. 1949), of the Progressive Conservative Party. The association with Alberta Health Services further increased international awareness of the clinical, research, and educational activities in medicine and health care in Alberta.<sup>64</sup> Some of the landmark events that contributed to this recent development include the hiring of external experts, who shaped the field, institutional foundations,

and new technological and policy developments. Cochrane was especially keen on these collaborative interchanges, stating, “not only must the faculty be enthusiastic and aggressive, but it must have the support and understanding of the community, of organized medicine and of government.”<sup>65</sup> He was concerned with the relationship between the medical school, the community, and the network of Alberta health-care institutions, and believed that “it is imperative that reasonable experimentation in medical education be implemented. The present outline of the proposed program at the University of Calgary must remain flexible to allow for modification and adjustment.”<sup>66</sup>

Government support was also important for the establishment and growth of the University of Calgary’s Faculty of Medicine. While the new medical school sent out its first admissions letters to its small inaugural cohort of medical students in 1970, the annual class sizes of medical students at the University of Alberta in Edmonton remained fairly large, in a range of 104 to 125 students.<sup>67</sup> Conversely, the new medical faculty started with small classes of several dozen students. In September 1970, the inaugural class of the University of Calgary’s medical school was comprised of only thirty-three students, which were selected from a rather considerable group of 461 applicants.<sup>68</sup> The second incoming class, in February 1971, was chosen from an even greater number of 1,160 applicants. “Core” lectures and classes were presented to all students, with additional “elective” periods chosen by the students in light of the medical disciplines in which they sought to practise after graduation.<sup>69</sup> The undergraduate medical education program was confined to three eleven-month-long academic years (with no free summer periods for research and clinical electives, as practised in the traditional four-year programs at McGill University and at the University of Toronto). After this, a medical doctorate degree was awarded with the original expectation that the students could continue on for at least two further years of appropriate postgraduate study (in family medicine). It was planned that during the third undergraduate year, the medical students would then begin their clinical clerkship rotations with ambulatory care given an increasingly prominent role in their practical medical education.<sup>70</sup>

Although undergraduates were encouraged to pursue a career in family medicine during the formative years of the medical school in Calgary, residency programs were designed and initiated in other specialty



disciplines as well.<sup>71</sup> The additional residency programs were opened with the goal of supporting adequate programs and recruiting a comprehensive group of faculty members. In fact, the residency programs became very important to the graduating physicians of the faculty, along with the health-care needs of the Albertan public that these physicians came to serve. While at first 29 male students and only 4 female students were accepted into the program (with the ratio today closer to 60 per cent female versus 40 per cent male students), after ten years it had already grown to approximately 120 student positions. There were seven times as many applications sent in for Grade Point Assessments in 1980, after the Medical College Admissions Tests (MCATs) had been introduced on a Canada-wide basis in 1961.<sup>72</sup>

The situation of undergraduate teaching, however, was still very provisional, as one of the alumni of the first medical class pointed out on the occasion of the faculty's fortieth anniversary on 29 October 2011:

We were taught in small group sessions on the twelfth floor of the Foothills Medical Centre. . . . “Our floor” was stuffed with so many things: there were tables with textbooks on them, a corner that was used for chemical demonstrations, plastic torsos and models in another one, and opposite of the secretary's area there was the “anatomy department.”

He went on to describe the experience of the classroom:

We gathered here in superb collegiality among the fellow students and together with the often-young medical instructors. I must say, we enjoyed “our floor” tremendously. . . . And, above all, the view from the windows on the hospital building's top floor was just spectacular! I've never forgotten the superb panorama, although I've since lived in California for more than three decades.<sup>73</sup>

Due to the lack of space, much of the teaching during the first years occurred in the lecture halls and class rooms of the Administration and Social Sciences Buildings, on the university's main campus. It was especially the period between 1973 and 1984, under the second dean of the University of Calgary's Faculty of Medicine, Dr. Lionel E. McLeod (1927–93),<sup>74</sup> that

many of the ensuing changes that led to the new educational and office buildings on the Foothills Campus came into being. Founding dean Bill Cochrane did not stand as a decanal candidate for a second term. After a short period as a government advisor he moved on to become the president of the University of Calgary from 1974 to 1978.<sup>75</sup> Yet after the class sizes in the medical school program increased over the succeeding years, courses again needed to be offered on the main campus to accommodate the need for extra class rooms, laboratories, and lecture theatres. This demanding situation had already given rise to the planning of a new Health Sciences Centre (HSC) in 1972 (see figure 1), which would later be built adjacent to the Foothills Medical Centre. The HSC would then become the main educational building for the medical school.<sup>76</sup>

James Hyne, the dean of graduate studies in the 1990s, credited the first ten years of growth in the medical school with securing support from the Alberta Heritage Foundation for Medical Research. He was quoted as saying that if “the University of Calgary hadn’t gone from where it was in the 1960s to where it was in the late ’70s when the Medical Heritage Fund came out . . . ninety percent of the Heritage Fund would have gone to the U of A and not to the U of C.”<sup>77</sup> Yet the fact that the University of Calgary had “built what was clearly a university by the early ’70s . . . [meant that] it was very hard for the Provincial authorities to say, you know we give a pittance to Calgary and put it all in Edmonton.”<sup>78</sup>

Although the planning had already started in the early 1970s, the construction phase took more than seven years, and only ended with the inauguration of the new Health Sciences Centre in 1975. A group of architects had previously been approached in 1968 to design a physical structure to house the education programs, and this design would adequately serve the preconceived objectives of the Calgary medical school. Some architectural flexibility was thought to be essential, since the traditional department structures should be transcended over time (in fact, the new medical faculty did not have department structures for several years, but relied instead on its clinical services, unit divisions, and later, its interdisciplinary research groups).<sup>79</sup> The new architectural design of the medical school reflected the growing desire for interdisciplinary teaching and research. Furthermore, the Ambulatory Care Centre, a key element of the physician-training process in Calgary, became an integral part of the physical plan. This reflected a conviction in the medical faculty that a

strong training aspect outside of the traditional hospital environment was important as well. One of the architects contacted for this project was the German-born, Bauhaus-trained Eberhard Zeidler (b. 1926). Zeidler had gained a lot of recognition in the Canadian medical world for his planning of the new medical school at McMaster University, where he put an organic planning style to play. It allowed for an accommodation of the respective units on several floors in the academic institution, which was likewise suggested as the main architectural element for the Calgary building projects in the mid-1970s.<sup>80</sup>

## Continuing Responses of the University of Calgary's Faculty of Medicine to the Calgary Health Region and Alberta Health Services' Contexts

Between the 1920s and '50s, patients who needed specialized services from all larger cities in Alberta—including Calgary, Red Deer, and Lethbridge—had to be transported to the University of Alberta's Royal Alexandra Hospital in Edmonton by automobile, ambulance, or occasionally even propeller airplane, to receive diagnostic attendance and special clinical treatment.<sup>81</sup> The largest hospital in Calgary, the Calgary General Hospital, had been created as a community hospital, and had been operating from its location at 7th Street and 9th Avenue since 1890. During the first half of the twentieth century, it developed more and more specialized services—for example in internal medicine, surgery, and family medicine—which the academic medical community in Calgary could draw upon.<sup>82</sup> This focalized culture also led to the remarkable foundation of subspecialized units and programs that would attract extraordinary practitioners and researchers to Southern Alberta, even before the official foundation of the new academic medical school at the University of Calgary in the 1960s. An illustrative example was the hiring of the surgeon Dr. Allan Lockwood Hepburn (1924–2010) by the Holy Cross Hospital. He was hired in 1951 and worked at the Holy Cross until 1953. Lockwood then took up neurosurgical residency training at the Mayo Clinic in Rochester, Minnesota. Following his graduation as a fellow of the American College of Surgeons, in 1956, he returned to Calgary to become the chief of the neurosurgery services at the Holy Cross and Calgary General Hospitals. Moreover,

he served as the president of the College of Physicians and Surgeons of Alberta beginning in 1976, and served as a medical coordinator to the Workers' Compensation Board of Alberta until his retirement in 1996.<sup>83</sup>

Another influential clinician and early member of the University of Calgary's Faculty of Medicine was the South African-born surgeon Dr. Peter Cruse (1927–2006). He had received his MD from the University of Cape Town and pursued his postgraduate training at the Durban McCord Zulu Hospital before earning his British Fellowship in Surgery in hospitals in the Greater London area in the United Kingdom. After migrating to Canada, he first worked in private practice, then as a surgeon at the Calgary General Hospital, before transitioning to the Calgary Foothills Hospital when it opened in 1966. Peter Cruse became very active as the president of the new hospital's medical staff, organizing balls and helping to kick-start the tradition of the annual Stampede Breakfasts on the Foothills Campus during the wild days of rodeo at the festive celebration of the Western frontier spirit that takes place in the city every July. In 1967, Dr. Cruse organized the Wound Infection Surveillance Program, which explored various factors that influenced the wound infection rate among hospital patients. This clinical research program was soon internationally recognized. By 1977, Dr. Cruse's methods brought the Foothills' clean post-operative infection rate from 3 to 5 per cent down to an impressive 0.6 per cent. These developments were decisive for the subsequent approval of the local residency-training program in surgery through the Royal College of Physicians and Surgeons of Canada, in 1970, along with the related residency-training program in plastic surgery at the University of Calgary Faculty of Medicine.<sup>84</sup>

In addition to the impact brought to bear by many unique individuals in the city, the Calgary Medical Society proved to be a very active player too, since most of the local clinical physicians were members of this professional association at the time.<sup>85</sup> This body was established in 1906, and likewise came to incorporate the physicians in the nearby towns. Originally called the Calgary and Districts Medical Society, it aligned suitably with the Alberta Medical Society and the Royal College of Physicians and Surgeons of Canada.

In the more than one hundred years since its foundation, the Calgary Medical Society had shown itself to be a notable stakeholder of the interests of the local physicians and the community it served. In the 1960s it,

too, supported the idea of establishing the Calgary medical school, as the internist and psychiatrist Gerald M. McDougall (1935–2015) emphasized in his volume *Teachers of Medicine*, on the early days of the medical profession in Calgary: “The Calgary Medical Society formed a committee to be ‘advisory’ to the Minister of Health [Ross] and the administration of the Foothills Hospital during its construction. The Minister was known to usually accept his own advice or that of a very few close friends.”<sup>86</sup> The Calgary Medical Society further strove to establish social relations with the medical staff associations of all Calgary hospitals, and its membership incorporated the entirety of the academic disciplines across medicine and surgery in Calgary.<sup>87</sup>

The 1960s saw significant turning points in the province of Alberta. The populations of its two major cities, Edmonton and Calgary, doubled, with about half of the population living in urban centres rather than in rural settlements, as was previously the norm. In 1967, an effective health-care system made for further diversification of medical and nursing facilities, with the introduction of Medicare in Canada.<sup>88</sup> This development was seconded by the arrival of new research and health-care technologies. In 1973, for example, efforts were made to purchase a computer tomography (CT) scanner for Calgary with the intention to “allow [the] departments of Radiology and Neurosurgery to compete with the leaders of [the] country.”<sup>89</sup> In 1974, the Foothills Hospital received political priority over the Calgary General Hospital for the installation of the respective computer tomograph. This achievement was largely due to the engagement of radiologist Dr. Hector Ewart Duggan (1916–89) and neurosurgeon Dr. Francis (“Frank”) E. Leblanc (b. 1935?). The first CT scanner in Western Canada came into clinical and research use in March of 1975.<sup>90</sup> That such innovative research technology arrived in Southern Alberta proved to be a major factor in the enhancement of local radiological, surgical, and neuroscientific activities, culminating in the creation of the interdisciplinary Department of Clinical Neurosciences at the University of Calgary’s Faculty of Medicine in 1980. The new department was innovative and interdisciplinary, merging the preceding divisions of neurology and neurosurgery under the leadership of the new dean of the medical faculty, Dr. Mamoru (“Mo”) Watanabe (b. 1931).<sup>91</sup> Its existence also led to the subsequent approval of a residency-training program in pediatric neurology at the University of Calgary Faculty of Medicine, through the Royal College

of Physicians and Surgeons of Canada. This was accompanied in 1983 by the further accreditation of a residency-training program in emergency medicine by the Royal College.<sup>92</sup>

Within a few years of its foundation, the Foothills Hospital had come to attract many thousands of patients from the city of Calgary and from Southern Alberta more generally. However, an additional independent institution was planned by a task force put together by the pediatrician and later dean of the medical faculty Dr. Grant Gall (1940–2009). The additional institution would be an interdisciplinary hospital for children in Southern Alberta, since “not only were there more births, but children were now likely to survive to adult life. There was a sharp fall in deaths in childhood, and after the age of one year, death in childhood became uncommon.”<sup>93</sup> Initially, the Calgary General Hospital Bow Valley Centre had to be used as an interim pediatric health-care facility to meet the heightened demands. It comprised the Bridgeland-Riverside area that was provided by Calgary City Council in 1980, along with Calgary General Hospital lands and the adjacent open space from the neighbourhood. This foreshadowed the discussion instigated through a commissioned study by Price Waterhouse for Calgary Health Services, chaired by the former provincial Progressive Conservative politician Louis (“Lou”) Davies Hyndman (1935–2013), about a possible abandonment of the Calgary General Hospital in lieu of the newly built Foothills Medical Centre, which found that “in the midst of public support for this move [the government] would be able to close the Holy Cross and the Calgary General hospitals without opposition.”<sup>94</sup> The close proximity of the Alberta Children’s Hospital would favour the decision. Hyndman presented a few options that were under review by the Alberta Children’s Hospital and the other hospitals “at the same time as the public protests were continuing. There were detailed cost analyses and a study of the move’s impact on quality of care.”<sup>95</sup>

The Calgary General Hospital in conjunction with the Foothills Medical Centre and the University of Calgary Faculty of Medicine provided their feedback about the Children’s Hospital over many months in 1980. However, the medical community in both Calgary hospitals criticized the planning document. On the one hand, the existing departments of the Foothills Hospital were threatened in their breadth and scope by its composition. On the other hand, the Calgary General Hospital raised concerns about the potential externalization of two of its major clinical and

research programs. The creation of the new Alberta Children's Hospital was finally approved in recognition of the "premises with their needs in mind, by professionals skilled in paediatric care and under the control of an administration dedicated to the best interests of children and their caregivers."<sup>96</sup>

After official approval had been received from the Royal College of Physicians and Surgeons in 1980, a supplementary residency-training program in neurology was created at the University of Calgary's Faculty of Medicine. Dr. Robert Lee (1931–2018) was appointed as the program's first director, although a complete centralization of the neuroscientific services in the Foothills complex had to await the closure of the Calgary General Hospital in 1998. That building's subsequent demolition followed from the verdict of Alberta's premier, Ralph Klein, while between 1992 and 1997 a new Department of Clinical Neuroscience at the University of Calgary's Faculty of Medicine was created under the deanship of Dr. Eldon R. Smith (b. 1941).<sup>97</sup>

## The Impact of the Alberta Heritage Foundation for Medical Research

Many of the changes since the 1980s were made possible through the inauguration of the Alberta Heritage Foundation for Medical Research (AHFMR) in 1980. Created with an endowment of \$300 million and overseen by a board of trustees, it began funding researchers in the very year of its creation.<sup>98</sup> The then dean of the Faculty of Medicine, Dr. McLeod, became the first president of AHFMR and continued to lead the foundation for nearly a decade between 1981 and 1990. Through innovative commitments to biomedical research in the province, the foundation soon gained increasing international acknowledgement as one of the major North American medical research funding institutions. The foundation's board recruited more than 150 biomedical researchers to the province, who subsequently engaged in the training of more than 3,000 investigators, as well as the development of the first interdisciplinary research groups in Edmonton and Calgary.<sup>99</sup> Other objectives included an interdisciplinary educational program that permitted a close translation of medical sciences to their clinical application. The construction of impressive research

complexes with additional laboratories, workplaces, seminar rooms, and administrative offices was later planned in the cities of both Edmonton and Calgary. Later, the University of Lethbridge also received additional infrastructure support when its health research facilities grew as well.<sup>100</sup> At the same time, Dean McLeod continued to work on bringing further medical scientists to Calgary, who would influence the research and teaching directions in the Faculty of Medicine for the coming decades. McLeod himself would later be recognized for his administrative capabilities when he was appointed president of the Royal College of Physicians and Surgeons of Canada, president of the Association of Canadian Medical Colleges, and a member of the Canadian Institute for Advanced Research.<sup>101</sup>

In 1987, a special fund was taken out of the endowment to finance two “Heritage Medical Research Buildings” at the University of Alberta and the University of Calgary. Although AHFMR funding priority was normally given to attract the most promising and influential research personnel, these research buildings—which were opened one and a half years after the creation of the special fund—were planned to house the increased number of biomedical researchers at the U of C and the U of A.<sup>102</sup> Over the course of twenty-five years, 130 researchers and 1,000 students were supported (often multiple times) by the foundation at all four research-intensive universities in the province (which in addition to the Universities of Calgary and Alberta included the University of Lethbridge and Athabasca University). The AHFMR was a non-profit, charitable organization that had supported select, top-quality health researchers and trainees; however, it was later dissolved through a decision by Advanced Education Minister Douglas Alan Horner (b. 1961). Horner publicly announced the end of the foundation’s salary grants in 2010, a decision endorsed by the Alberta government led by the Progressive Conservative Party at the time, which had itself supported the creation of the foundation three decades before.<sup>103</sup> This momentous decision resulted in an abrupt pause to an incredible success story in biomedical research and the health sciences for which the province had so far been admired internationally.

Since 2004 the research profile of the University of Calgary Faculty of Medicine was further diversified through the creation of six (now seven) research institutes that cut across the medical school’s departmental organization. These interdisciplinary institutes were joined, in 2011, by the



Institute for (Population and) Public Health (now known as the O'Brien Institute for Public Health). Between 2003 and 2009, for example, the McCaig Bone and Joint Centre was planned and opened at the Foothills Hospital as a “mirror institute” in Calgary after the establishment of a heart institute in Edmonton in order to meet the needs of an ever-increasing population in the province that attracted large numbers of migrating workers from other Canadian provinces and from abroad.<sup>104</sup>

The focus on medical science, represented by the creation and functioning of the research institutes at the University of Calgary's medical faculty, was furthered in 2008 through the first Canadian Gairdner Award received by the director of the Hotchkiss Brain Institute, Dr. Samuel Weiss (b. 1955). Weiss received the award for his discovery of the anatomical existence of neuronal stem cells, which put an end to a century-long debate in the field of neuromorphology.<sup>105</sup> The institute was established through a foundational gift from Calgary's Hotchkiss family in 2004, with the support of the University of Calgary and the Calgary Health Region (now Alberta Health Services).<sup>106</sup> It was founded as the Hotchkiss Institute for Brain Research in the University of Calgary, Faculty of Medicine, and moved into the Health Sciences and Health Research Innovation Centre (HRIC) building, which was officially launched in 2010.<sup>107</sup> The new buildings had been planned since 2007, and the HRIC opened in several phases, continuing until summer 2010. The completion of the laboratory and office fitting of the HRIC and Teaching, Research and Wellness (TRW) buildings (originally planned as the Translational Research Wing) offered new space for wet and dry labs, the latest improvements in medical technologies, and the outpatient clinics projected to serve 150,000 patients each year.<sup>108</sup> By the early 2000s, the Faculty of Medicine had six institutes, each of which had “embarked on individual efforts to communicate their research activities with the Faculty of Medicine and other key stakeholders.”<sup>109</sup> In the faculty's 2007 self-study report, it was noted that many institutes were active in research dissemination and public outreach.<sup>110</sup> The Hotchkiss Brain Institute maintained a website and distributed its own electronic newsletter regularly, along with a “Report to Community,” which was printed annually. Additionally, both it and the Infection, Immunity and Inflammation Institute held town halls periodically to provide information and gain feedback from their members.<sup>111</sup>

Similarly, the Clark H. Smith Brain Tumour Centre at the University of Calgary was opened in March 2004; it henceforth emerged as the home of a comprehensive translational research program that promised to enhance the process of discovery and the application of research knowledge in the clinical care programs. The research landscape in basic and clinical neurosciences was further diversified through the establishment of the bachelor of science in neuroscience in November 2009, which was a joint venture of the Faculties of Medicine, Arts, and Science.<sup>112</sup> Clinical neurologist and bioethicist Dr. Sheldon Roth (b. 1938) served as the program's inaugural director.<sup>113</sup>

## Reflections on Health-Care Changes and Legislative Initiatives in Alberta

In 1994, the Calgary Regional Health Authority was created. It lasted only until June 2008, when the Alberta government again abolished the existing health regions and replaced them with a single new provincial entity—the Alberta Health Services network.<sup>114</sup> To answer some of the emerging demands on the health-care system in the province, the University of Calgary Faculty of Medicine also launched a new clinical presentation (CP) curriculum, based on continuing medical education principles, enhanced physician-patient relationships, as well as better medical communication processes and information management. The new curriculum was later described in a scholarly article in *Academic Medicine*, which outlined how the faculty had broken from the traditional model of “disciplines, body systems, or clinical problems” and “carefully evaluated the advantages and disadvantages of each of these models in seeking to revise their school’s curriculum.”<sup>115</sup> According to the article, the faculty had found that “all three models fell short of a curricular structure based on current knowledge and principles of adult learning, clinical problem solving, community demands, and curriculum management.”<sup>116</sup> Thus the faculty designed a strategic plan to revise the curriculum based on patient examination and “120 clinical presentations (e. g., ‘loss of consciousness/syncope’) were defined and each was assigned to an individual or small group of faculty for development based on faculty expertise and interest,” and as a result it had created a “new competency-based, clinical presentation curriculum.”<sup>117</sup>

The new prospectus sought to emphasize students' responsibility for their educational process, with a special focus on a team-based approach to patient care. It was also recognized at this early stage that there was a need for a greater proportion of medical education to occur outside traditional hospital environments and to instead focus on family practice and community medicine. Professors and clinical researchers were recruited from Canada, the United States, Great Britain, and Europe. The faculty henceforth diligently approached Canadian physicians from other provinces holding American academic positions and encouraged them to return to Canada. Seven senior academic staff subsequently came to the University of Calgary from the United States; and the university also successfully engaged a new director of animal care facilities, who was also responsible for overseeing the medical vivarium.<sup>118</sup>

The other important focus that developed within the maturing medical school was faculty research programs. It soon became apparent that the success of the new medical school as a whole depended upon its professoriate and full-time investigators producing meaningful medical research that sustained the scientific life of the school and inspired its new student cohorts.<sup>119</sup> The faculty's Research Committee emerged as one of the medical school's most active and regular committees. It had increased its portfolio and administrative influence between 1981 and 1992 under the deanship of Mo Watanabe. The increasing emphasis on research was exemplified a few years earlier in a presentation given by Dr. McLeod at the first Government House Dinner. He said:

It is very important to remember that medical research has given us the ability to prevent poliomyelitis, to cure or prevent tuberculosis, and in so doing have helped us to close down whole networks of expensive institutions. Medical research has removed typhoid, malaria, diphtheria and whooping cough from the role of mass killers. If we can provide research workers with the potential for continuing their diligent struggle for decisive technology of modern medicine, they will eventually explain the causes of cancer, coronary disease, and kidney failure. Hopefully we can then prevent or cure them, and we can throw away the dialysis machines and close the vast cardiac, surgical departments.<sup>120</sup>

In 1997, Dr. Grant Gall—who was an associate dean under Eldon R. Smith from 1992 to 1997—was appointed dean of the University of Calgary’s Faculty of Medicine. Dr. Gall held this position for two terms, spanning a full decade of full-scale administrative leadership between 1997 and 2007. He was a tireless worker and, as a trained paediatrician, he was instrumental in convincing the Alberta government of the need for a new children’s hospital to serve the city of Calgary and all the communities in Southern Alberta.<sup>121</sup> He emphasized the importance of children’s influence during the planning process itself, which had led to novel building changes such as low windows, bright colours, and a special entrance for the so-called “chemo kids.” The resulting structure came to be widely known and celebrated as the Calgary children’s “Lego House.” The Institute of Maternal and Child Health was also established in 2004 to complement perinatal care and medical research activities around the developmental stages of childhood, puberty, and adolescence.

As someone who had been brought up on a farm in Saskatchewan, Dr. Gall further recognized the need for veterinarians in the medical school’s vicinity, and he advocated for the creation of the University of Calgary Faculty of Veterinary Medicine. The requirement for such a faculty had become particularly prominent in the awareness of Albertans when Mad Cow Disease broke out in the Western Canadian provinces in May of 2003.<sup>122</sup> In the fall of 2005, the government of Alberta formally established the faculty—the first one in the province.<sup>123</sup> Throughout his career, Dr. Gall was also highly active in relation to the Canadian Institutes of Health Research. He served on various committees and also chaired the Experimental Medicine Grant Review Committee. He supervised a successfully funded laboratory for more than twenty years and was recognized as a leader in intestinal adaptation and diarrheal diseases.<sup>124</sup>

During the period of Dr. Gall’s deanship, the Faculty of Medicine created a second undergraduate educational program for the bachelor of health sciences degree, which was finally approved on 7 May 2002. This development was made possible by a major donation from the O’Brien family, a fact reflected in the program’s name, the O’Brien Bachelor of Health Sciences Program. It totalled \$5 million dollars in research and administrative revenues at the time. The official opening of the centre occurred in April 2005, and the first class of forty-eight students graduated from the four-year program in 2008. Previously, in March of 2003, the

Alvin and Mona Libin Foundation presented the largest ever one-time donation to the Calgary Health Region and the University of Calgary. It totalled \$15 million and contributed to the creation of the Cardiovascular Institute of Alberta.<sup>125</sup>

Dr. Tom Feasby assumed the deanship of the Faculty of Medicine in July 2007. His term would soon come to be marked by negative economic growth, as it took place during another one of the volatile boom and bust cycles in Alberta's resource-dependent economy. The crash of the stock markets in the fall of 2008, and the decline in oil prices since that time, led the externally available research and education funds to take a plunge.<sup>126</sup> At the same time, the steep increase in the Calgary population to approximately 1.2 million inhabitants meant that the provincial government, along with Alberta Health Services, would need to continue planning for the Health Innovation Park (better known as the South Health Campus). The new institution opened to the public in 2008, with the first functional unit on the hospital campus being a second Department of Family Medicine.<sup>127</sup> During the recent deanship of Dr. Jonathan B. Meddings (appointed in 2012), a \$100 million gift from Canadian businessman Geoffrey A. Cumming, along with matching funds of \$100 million from the government of Alberta, led to the rebranding of the medical school as the Cumming School of Medicine,<sup>128</sup> while another \$10 million gift made by the O'Brien family resulted in the renaming of the seventh faculty-based research institute as the O'Brien Institute for Public Health in the fall of 2014.

## Conclusion

The brief historical analysis presented in this chapter offers some insights into the relationship between the initial planning and functioning of the University of Calgary medical school, prevalent educational and medical research demands over the past fifty years, along with general health-care needs in Calgary that were often aligned with major medical processes of the time. The image emerging from the short history of the University of Calgary's Faculty of Medicine is that of a fairly direct response to changing health-care contexts in Alberta. Between 1966 and 2016, the Foothills Medical Centre and the faculty have been in an intricate give-and-take relationship that was largely determined by governmental positions and decision-making processes, altered by economic growth and recession

periods, as well as ad hoc opportunities and external demands that were born out of frequent structural changes in Alberta's health-care and medical funding agencies.

The Faculty of Medicine was created in conjunction with the newly autonomous University of Calgary during a period of rapid growth in Canadian post-secondary academic institutions; it was clearly the need for physicians (particularly family doctors) that led to the establishment of the second medical school in Alberta—with its first cohort of students admitted in 1971—to serve the growing Canadian population. The 1980s, especially, marked a shift toward more diversification in research and clinical education, while the Faculty of Medicine considerably increased its size and scope. It has emerged as one of the larger medical schools in Canada, with particular areas of clinical, biomedical, and health-care research strengths, while still continuing a process of redefining its strategic development, its position among the other Canadian medical schools, and its contribution to the provincial health-care system of Alberta. The faculty was originally created in response to the growing pressures in the medical scene, but since its existence has arisen as a major driver for change within Alberta's medical profession and health-care landscape.

## NOTES

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- 1 Elise A. Corbet, *Frontiers of Medicine* (Edmonton: University of Alberta Press, 1990), 81.
- 2 Ibid.
- 3 Michael Bliss, *The Making of Modern Medicine: Turning Points in the Treatment of Disease* (Toronto: University of Toronto Press, 2011).

- 4 These traditions reached North America largely through British educational systems and networks, very strongly by way of the Edinburgh medical study programs in Scotland since the eighteenth century. See, for example, Richard H. Nuttall, "Edinburgh and Medicine," *Technology and Culture* 18, no. 4 (1977): 666–9.
- 5 Although medical history in Canada is an area with an expanded literature generated by Canadian scholars—see James Moran and David Wright, eds., *Mental Health and Canadian Society: Historical Perspectives* (Montreal and Kingston: McGill-Queens University Press, 2006); Franca Iacovetta and Wendy Mitchinson, eds., *On the Case: Explorations in Social History* (Toronto: University of Toronto Press, 1996); or Thomas E. Brown, "Living with God's Afflicted:" *A History of the Toronto Lunatic Asylum, 1833–1911* (PhD diss., Queens University, 1980)—the larger literature on the history of medicine focuses mostly on the developments in British medical traditions, colonialization, and American medical innovations in the twentieth century—see Marijke Gijswijt and Roy Porter, eds., *Cultures of Neurasthenia: From Beard to the First World War* (Amsterdam: Rodopi, 2001); Terry Copp and Mark Humphries, eds., *Combat Stress in the 20th Century: The Commonwealth Experience* (Kingston: Canadian Defence Academy, 2011); or Charles E. Rosenberg, *The Care of Strangers: The Rise of America's Hospital System* (New York: Basic Books, 1987).
- 6 Michael Bliss, *William Osler: A Life in Medicine* (Toronto: University of Toronto Press, 1999).
- 7 For a thorough study of the development of medical practice in Alberta, see: Robert Lampard, *Alberta's Medical History: "Young and Lusty, and Full of Life"* (Red Deer, AB: printed by the author, 2008), esp. 505–18.
- 8 For a focused discussion of the early developments in the University of Alberta Faculty of Medicine, see John W. Scott, *The History of the Faculty of Medicine of the University of Alberta, 1913–1963* (Edmonton: University of Alberta, 1963).
- 9 Don Smith, *Calgary's Grand Story—The Making of a Prairie Metropolis from the Viewpoint of Two Heritage Buildings* (Calgary: University of Calgary Press, 2005), 257–61.
- 10 Anthony W. Rasporich, *Make No Small Plans: The University of Calgary at Forty* (Calgary: University of Calgary, 2007), 3.
- 11 Robert Lampard, "Peter Joseph Erasmus Cruse, MB ChB, FRCS (C&E), FACS, (1927–2006)," in *The Proceedings of the 20th Anniversary History of Medicine Days Conference 2011: The University of Calgary Faculty of Medicine, Alberta, Canada*, ed. Aleksandra Loewenau, Kelsey Lucyk, and Frank W. Stahnisch (Newcastle upon Tyne, UK: Cambridge Scholars Publishing, 2014), 1–30, esp. 5.
- 12 Erin Martinez, "Team Performs Calgary's First Domino Kidney Transplant" (news release), Alberta Health Services, 29 July 2010.
- 13 Geertje Boschma, *Faculty of Nursing on the Move: Nursing at the University of Calgary, 1969–2004* (Calgary: University of Calgary Press, 2005), 31.
- 14 Evelyn Hardwick, Eileen Jameson, and Eleanor Tregillus, *The Science, the Art and the Spirit: Hospitals, Medicine and Nursing in Calgary* (Calgary: Century Calgary Publications, 1975), 153–4.

- 15 Ingrid G. Farreras, Caroline Hannaway, and Victoria A. Harden, eds., *Mind, Brain, Body, and Behavior: Foundations of Neuroscience and Behavioral Research at the National Institutes of Health* (Amsterdam: Rodopi, 2004), 312–13.
- 16 Dennis Slater and Frank W. Stahnisch, *History of Medicine Walk on the Occasion of the 40th Anniversary Celebration of the Faculty of Medicine, University of Calgary* (Calgary, AB: Unpublished Manuscript, 2010), 1.
- 17 Reports of the Board of Governors quoted in Cyril Levene, *Planning Recruitment of Early Faculty* (unpublished manuscript, 1996), 1–3.
- 18 Charles Illingworth, J. Arthur Macfarlane, and George Wolf, *Report of a Survey of the Feasibility of Establishing a Medical School in the University of Calgary* (Calgary: The Board of Governors and the President, University of Alberta at Calgary, 1965), 2–3.
- 19 Neil Rothwell, Ray D. Bollman, Juno Tremblay, and Jeff Marshall, “Migration to and from Rural and Small Town Canada,” *Rural and Small Town Canada Analysis Bulletin* 3, no. 6 (2002): 30–5.
- 20 Emmett M. Hall, ed., *Royal Commission on Health Services: 1964 / Royal Commission on Health Services: 1965* (Ottawa: Government of Canada, 1964 and 1965), two vols.
- 21 Ross Vant and Tony Cashman, *More Than a Hospital: University of Alberta Hospitals 1906–1986* (Edmonton: University Hospitals Board, 1986), 198.
- 22 Lawrence A. Fisher, *The Medical School as Nucleus of a Health Sciences Centre—From “Medical School” to “Health Sciences Centre”* (unpublished manuscript, 2004), 1–6.
- 23 Rasporich, *Make No Small Plans*, 126.
- 24 Lampard, *Alberta’s Medical History*, 135–8.
- 25 N. Tait McPhedran, *Canadian Medical Schools: Two Centuries of Medical History, 1822–1992* (Montreal: Harvest House, 1993), 24–6.
- 26 Aritha Van Herk, *The Age of Audacity: 50 Years of Ambition and Adventure at Calgary’s Own University* (Calgary: University of Calgary Press, 2016), 1–3.
- 27 Boschma, *Faculty of Nursing on the Move*, 25–7.
- 28 Frank J. Papa and Peter H. Harasym, “Medical Curriculum Reform in North America, 1765 to the Present: A Cognitive Science Perspective,” *Academic Medicine* 74, no. 2 (1999): 154–64, esp. 160.
- 29 *Ibid.*, 161.
- 30 Sheila L. Duff and David G. Fish, “Medical Education: Medical Students in Canadian Universities: Report of Statistics, 1966–67,” *Canadian Medical Education Journal* 96, no. 13 (1967): 921–6.
- 31 William Musselwhite, *Earle Scarlett: A Study in Scarlett* (Toronto and Oxford: Hannah Foundation and Dundurn Press, 1991), 94–5.
- 32 *Ibid.*, 110.
- 33 Government of Alberta, “Health, 1919–1971, 1988–1999,” in *An Administrative History of the Government of Alberta, 1905–2005* (Edmonton: Government of Alberta, 2005), 282–92, esp. 291.



- 34 Bill Cochrane (April, 2006) quoted in Rasporich, *Make No Small Plans*, 3.
- 35 University of Calgary Faculty of Medicine, *Administrative History* (Calgary: Faculty of Medicine Fonds, 1963–2000), Fond No. 249426.
- 36 Robert Lampard, *Deans, Dreams and a President. The Deans of Medicine at the University of Alberta, 1913–2009* (Red Deer, AB: published by author, 2011), 8–11.
- 37 Earle Scarlett (1966), quoted in Musselwhite, *Earle Scarlett*, 108.
- 38 William M. Goldberg, *Report of On-Site Survey of the Approved Medical Teaching Programmes, University of Calgary and Associated Teaching Hospitals, Calgary Alberta* (Ottawa: The Royal College of Physicians and Surgeons of Canada, 1970), 1.
- 39 Cheryl McPherson and Larry A. Sachs, “Health Care Team Training in U.S. and Canadian Medical Schools,” *Journal of Medical Education* 57, no. 4 (1982): 282–7.
- 40 Carty Coppes-Zantinga and Ian Mitchell, *The Child in the Centre: Seventy-Five Years at the Alberta Children’s Hospital* (Calgary: University of Calgary Press, 1997), 136.
- 41 Cyril Levene, *The Mission of the Medical School* (unpublished manuscript, 2007), 16.
- 42 Donal L. McNeil, “Reflections on the Development of the Faculty of Medicine, University of Calgary,” in *Medicine in Alberta: Historical Reflections*, ed. Sarah Wilson and Worley Parsons (Edmonton: Alberta Medical Foundation, 1993), 196–213.
- 43 Douglas Waugh, “Pedagogy, Self-Education, and the Information Explosion,” *The University of Calgary Faculty of Medicine Information Bulletin* 169 (September, 1982): 2–4, esp. 4.
- 44 Wayne Woloschuk, Peter H. Harasym, and Walley Temple, “Attitude Change During Medical School: A Cohort Study,” *Medical Education* 38, no. 5 (2004): 522–34.
- 45 Lawrence A. Fisher, *The Mission of the Medical School—The M.D. Programme* (unpublished manuscript, 2007), 3–4.
- 46 Ibid.
- 47 Government of Canada, *Canadian Medical Education Statistics* (Ottawa: Canadian Medical Education Statistics, 2013), 1–2.
- 48 Levene, *In the Atmosphere of Learning*, 8.
- 49 Jack Peach, *A Shelter from the Winds of Illness. Foothills Hospital, 1966–1991: Celebrating a Quarter Century* (Calgary: Foothills Hospital, 1991), 3.
- 50 Jack Peach, *In Sickness & In Health: Holy Cross Hospital—Celebrating Our First Century of Caring, 1891–1991* (Calgary: Calgary District Hospital Group, 1991), 108–9.
- 51 D. J. Theo Wagner, *The History of Oncology* (Houten, NL: Springer, 2009), 10.
- 52 “Gallery: A Look Back at 30 Years on the Tom Baker Cancer Centre,” *Calgary Herald*, 24 November 2011.
- 53 Richard H. M. Plain, *An Economic Analysis of Hospital Utilization Patterns in the General Acute Portion of the Alberta Hospital System* (Edmonton: Human Resources Research Council, 1972), 3.
- 54 Peach, *A Shelter from the Winds of Illness*, 3.

- 55 William A. Cochrane, "Philosophy and Program for Medical Education at the University of Calgary Faculty of Medicine," *Canadian Medical Education Journal* 98, no. 10 (1968): 500–5, esp. 503.
- 56 Ibid.
- 57 "Academic Programme for the Faculty of Medicine" (1 April 1969), Archives of the University of Calgary (Document 1 of 2; UARC 86.32 / 47.4), 1.
- 58 Peter H. Harasym, interview with author, 27 October 2009, Health Sciences Centre at the University of Calgary Faculty of Medicine.
- 59 Thomas Saunders, *The Development and Evaluation of a Residency Training Program for Family Physicians—Calgary General Hospital, 1965–1969* (Calgary: Calgary General Hospital, 1965).
- 60 Andrew D. Dickson, John H. Read, John W. Dawson, and William A. Cochrane, "Planning for Medical Education at The University of Calgary," *Canadian Medical Association Journal* 100, no. 14 (1969): 665–9.
- 61 Ibid.
- 62 Anna Rebus and Cathy MacLean, *History Project—The University of Calgary Department of Family Medicine* (Calgary: Department of Family Medicine, 2010), 1–2.
- 63 Owen G. Holmes, *Come Hell or High Water—A History of the University of Lethbridge* (Lethbridge: Lethbridge Herald, 1972), 1–5.
- 64 André Picard, "Centralization: A Step Back for Alberta Health Care?" *Globe and Mail* (Toronto), 22 May 2018.
- 65 Cochrane, *Philosophy and Program for Medical Education*, 505.
- 66 Ibid.
- 67 Corbet, *Frontiers of Medicine*, 128–35.
- 68 Cyril Levene, *In the Atmosphere of Learning* (unpublished manuscript, 2007), 8.
- 69 Francis John Rounthwaite, *General Report of On-Site Survey and of Specialty Training in Obstetrics and Gynaecology, Plastic Surgery and Neurosurgery, University of Calgary and Associated Teaching Hospitals, Calgary Alberta* (Ottawa: The Royal College of Physicians and Surgeons of Canada, 1971), 3–4.
- 70 *U/C Fac. Med. Residency or Graduate Clinical Education* (n.d., 1970–1?); Archives of the University of Calgary (UARC 99.553 / 5.01), 7–8.
- 71 David B. Hogan, "History of Geriatrics in Canada," *Canadian Bulletin of Medical History* 24, no. 1 (2007): 131–50.
- 72 Lampard, *Alberta's Medical History*, 127.
- 73 Oral account by one of the student alumni from the inaugural class of the University of Calgary Faculty of Medicine, at the History of Medicine Walk, conducted by Dennis Slater and Frank W. Stahnisch on the occasion of the faculty's fortieth anniversary celebration, 29 October 2011.
- 74 Robert Williams, *Minutes of the General Faculty Council. Meeting 383—Thursday, April 22* (Calgary: University of Calgary, 1993), 2.

- 75 Rasporich, *Make No Small Plans*, 143.
- 76 D. George Wyse, J. Robert Lampard, Barbara Kermode-Scott, and Al-Karim Walli, *Hearts, Minds & Vision: Roots of the Libin Cardiovascular Institute of Alberta, 1930–2010* (Cochrane, AB: Kingsley Publishing, 2012), 225–7.
- 77 James B. Hyne (1990) quoted in Rasporich, *Make No Small Plans*, 71.
- 78 Ibid.
- 79 Doris H. Annear, Audrey M. Cerkenac, and Moria Hogg, eds., *Neurosurgery in Calgary: The First Fifty Years* (Calgary: Blitzprint, 2004), 158–9.
- 80 Robb Beattie, “The Architecture of Healing,” *Patient* 1, no. 1 (2003): 18–21.
- 81 Annear, Cerkenac, and Hogg, *Neurosurgery in Calgary*, 75–7.
- 82 Sharon L. Richardson, “‘Stand Up and Be Counted’: Nursing at the Calgary General Hospital after the Second World War,” *Canadian Bulletin of Medical History* 18, no. 2 (2001): 297–323.
- 83 “Lieutenant-Colonel Allan Lockwood Hepburn CD (Ret), BSc, MD, MS, FRCSC, FACS, of Harvie Heights Alberta, Vancouver, and Bowen Island, BC,” *Globe and Mail* (Toronto), 22 November 2010.
- 84 Lampard, *Peter Joseph Erasmus Cruse*, 1–30.
- 85 Annear, Cerkenac, and Hogg, *Neurosurgery in Calgary*, 80.
- 86 Gerald M. McDougall, ed., *Teachers of Medicine: The Development of Graduate Clinical Medical Education in Calgary* (Calgary: University of Calgary, 1987), 89.
- 87 Malcom G. Taylor, *Health Insurance and Canadian Public Policy: The Seven Decisions that Created the Canadian Health Insurance System and Their Outcomes* (Montreal and Kingston: McGill-Queen’s University Press, 1987), 133.
- 88 Jim Connor, “Bookmarks: Making Medicare: New Perspectives on the History of Medicare in Canada,” *Canadian Medical Association Journal* 186, no. 12 (2014): E66.
- 89 Robert G. Lee quoted in Annear, Cerkenac, and Hogg, *Neurosurgery in Calgary*, 162.
- 90 Ibid., 165.
- 91 *The 1973 Annual Report, Department of Surgery, Foothills Hospital* (Calgary: University of Calgary, 1973).
- 92 Jocelyn M. Lockyer, Claudio Violato, and Herta Fidler, “The Assessment of Emergency Physicians by a Regulatory Authority,” *Academic Emergency Medicine* 13, no. 12 (2006): 1296–303.
- 93 Coppes-Zantinga and Mitchell, *The Child in the Centre*, 136.
- 94 Ibid., 204.
- 95 Ibid.
- 96 Ibid., 203–5, esp. 205.
- 97 Annear, Cerkenac, and Hogg, *Neurosurgery in Calgary*, 158–60.

- 98 Alberta Heritage Foundation for Medical Research, *Moving Forward: The Alberta Heritage Foundation for Medical Research Strategic Planning Report* (Edmonton: Alberta Heritage Foundation for Medical Research, 1992), 1–2.
- 99 Jennifer Zwicker and J. C. Herb Emery, “How is Funding Medical Research better for Patients? Valuing the Impact of Alberta’s Health Research,” *The School of Public Policy Discussion Paper* (21 August 2015), 8.
- 100 James Whitney, “\$300 Million for Medical Research in Alberta and a Heritage of Health,” *Canadian Medical Association Journal* 121, no. 12 (1979): 1606–13.
- 101 Lionel E. McLeod, “An Overview of the Canadian and Alberta Health Care Systems,” *World Hospitals* 22, no. 4 (1986): 7–9.
- 102 Lampard, *Alberta’s Medical History*, 15.
- 103 Robynne Rogers Healey, Carolee Pollock, and Julian Martin, *Shaping Research Frontiers: The Alberta Heritage Foundation for Medical Research, 1980–2005* (S.l.: s.n., 2005).
- 104 Harry H. Hiller, *Second Promised Land. Migration to Alberta and the Transformation of Canadian Society* (Montreal and Kingston: McGill-Queens University Press, 2009), 114.
- 105 Brent A. Reynolds and Samuel Weiss, “Generation of Neurons and Astrocytes from Isolated Cells of the Adult Mammalian Central Nervous System,” *Science* 255, no. 5052 (1992): 1707–10.
- 106 Harley N. Hotchkiss and Paul Grescoe, *Hat Trick: A Life in the Hockey Rink, Oil Patch and Community* (Toronto: Dundurn, 2009), 79–81.
- 107 Connor Sweazey, “The History of the Hotchkiss Brain Institute—Its First Ten Years as a Centre for Neurological and Mental Health at the University of Calgary,” in *Proceedings of the 25th History of Medicine Days Conference (2016) at the University of Calgary, AB*, ed. Lesley Bolton, Fedir Razumenko, and Frank W. Stahnisch (Newcastle upon Tyne, UK: Cambridge Scholars Publishing, forthcoming).
- 108 Craig Mitton, Scott Patten, Cam Donaldson, and Howard Waldner, “Priority-Setting in Health Authorities: Moving Beyond the Barriers. The Calgary Experience,” *Healthcare Quarterly* 8, no. 3 (2005): 49–55.
- 109 Office of the Dean of the Faculty of Medicine, *Faculty Self Study* (Calgary: Internal Typoscript, 2007), 1.
- 110 Ibid.
- 111 Ibid.
- 112 Frank W. Stahnisch, “Some Milestones from a Century of Brain Research in the Province of Alberta, 1910 to 2010,” in *First Joint Conference of the International Society for the History of the Neurosciences and the International Society for the History of Behavioral & Social Sciences*, ed. ISHN and Cheiron (Calgary: University of Calgary, 2011), 24–30, esp. 27–8.
- 113 Government of Alberta, *Study in Alberta—International Education Viewbook* (Edmonton: Government of Alberta, 2014), 32.

- 114 See also Geertje Boschma, "Community Mental Health Nursing in Alberta, Canada: An Oral History," *Nursing History Review* 20, no. 1 (2012): 103–35.
- 115 Henry Mandin, Peter Harasym, Chris Eagle, and Mo Watanabe, "Developing a 'Clinical Presentation' Curriculum at the University of Calgary," *Academic Medicine* 70, no. 3 (1995): 186–93, esp. 186.
- 116 Ibid., 186.
- 117 Ibid.
- 118 Ibid.
- 119 Lome S. Williams, "University of Calgary Marks 25 Years of Medical Training," *Canadian Medical Association Journal* 153, no. 7 (1995): 984–5.
- 120 Presentation by Dr. McLeod at the first Government House Dinner (1978), quoted in Lampard, *Alberta's Medical History*, 439.
- 121 Coppes-Zantinga and Mitchell, *The Child in the Centre*, 53.
- 122 Justin Kastner, Douglas Powell, Terry Crowley, and Karen Huff, "Scientific Conviction Amidst Scientific Controversy in the Transatlantic Livestock and Meat Trade," *Endeavour* 29, no. 2 (2005): 78–83.
- 123 See also chapter 7 of this volume by Alistair E. Cribb, on the historical development of the University of Calgary's Faculty of Veterinary Medicine.
- 124 Robert J. Baley, "A Tribute to Grant Gall," *Canadian Journal of Gastroenterology* 23, no. 6 (2009): 404.
- 125 Milos Jenicek, *Writing, Reading, and Understanding in Modern Health Sciences, Medical Articles and Other Forms of Communication* (Boca Raton, FL: CRC Press, 2014), 170.
- 126 Herbert J. C. Emery and Ronald D. Kneebon, "Socialists, Populists, Resources and the Divergent Development of Alberta and Saskatchewan," *Canadian Public Policy* 34, no. 4 (2008): 419–40.
- 127 Hiller, *Second Promised Land*, 33–4.
- 128 Kelly Cryderman, "Businessman Makes Largest-Ever Donation to University of Calgary," *Globe and Mail* (Toronto), 17 June 2014.



## A History of Aboriginal Health Research within the Faculty of Medicine, University of Calgary, 1966–2016

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Aboriginal health research and health-care provision has had a complex past within the University of Calgary Faculty of Medicine (now called the Cumming School of Medicine). The faculty made early strides in this area when it was first established by working with nearby First Nations with the goal of increasing accessibility. Yet these early efforts were influenced by a myriad of factors that halted their progress and led to a long hiatus in the faculty's focus on Aboriginal health. Historical legacies of biomedical power and colonial medicine<sup>1</sup> created tensions between the faculty and its partner First Nations tribes, and eventually the project was abandoned. Since then, any official faculty efforts have focused on internal policy issues with regards to the recruitment of Aboriginal students and faculty members. In the last twenty years, many individuals associated with the Cumming School of Medicine have initiated personal research and teaching programs with Aboriginal peoples. This rekindling of concerns about Aboriginal health from members of the university has come from the passion that individual professors, physicians, and researchers have shown for promoting Aboriginal health within the province of Alberta. Yet the individualized nature of this research shows that the school itself is poised

to create and implement a forward-looking and coherent mandate on the promotion of Aboriginal health.

## An Overview of Aboriginal Health in Alberta

In 2013, Alberta's Aboriginal population numbered about 220,000 individuals, or about 5.8 per cent of the provincial population.<sup>2</sup> Historically Aboriginal people have been the main inhabitants of Alberta's landscape, occupying its soil for at least eleven thousand years. The Aboriginal people of Canada are defined by section 35 of the Constitution Act of 1982 as "the Indian, Inuit and Métis peoples of Canada."<sup>3</sup> The term "Indian" has thus been legally cemented into the rhetoric of legislation regulating Aboriginal people within the country—and province—despite its social rejection as a historically racist term. The term is further augmented by several categories within policy: "Status Indian"; "Non-Status Indian"; and "Treaty Indian." Status Indians are defined by the Indian Act, originally passed in 1876, as "a person who pursuant to this Act is registered as an Indian or is entitled to be registered as an Indian."<sup>4</sup>

Despite the legal definitions, the terminology has changed to utilize a more inclusive and respectful term, that of "First Nations." The term is used to refer to both Status and Non-Status Indians, as defined under the Indian Act. To confuse the matter of terminology further, however, differences between federal and provincial definitions of First Nations exist. While the Alberta government lists forty-seven First Nations chiefs and councils, the federal government does not recognize leadership in three of these First Nations, thus providing only forty-four.<sup>5</sup> These complications signify how jurisdictional issues can work to convolute the systems that have been put in place to handle Aboriginal issues.

Three treaties were signed by the Crown with the Aboriginal peoples of Alberta: Treaty 6 (signed in 1876) includes sixteen of the First Nations; Treaty 7 (signed in 1877) includes five First Nations; and Treaty 8 (signed in 1899) includes twenty-four First Nations. Geographically, Treaty 8 is in the northern part of the province, Treaty 6 in the middle, and Treaty 7 in the south. The treaties eventually led to the creation of the reserve system by the federal government, which relocated the different First Nations to new lands and restricted their movement and settlement. There are 140 reserves in Alberta, scattered from the northern to southern borders.<sup>6</sup> The



Métis in Alberta were also provided with eight settlements or land bases, unlike in other provinces. First Nations' reserves range in population size, from zero to eight thousand, the former indicating that everyone has left that community and the latter—the population of the Blood Tribe, located in Southern Alberta—being one of the largest First Nations in Canada.<sup>7</sup> In addition, Aboriginal peoples from other provinces and the United States migrate to Alberta looking for educational and employment opportunities.<sup>8</sup>

There is a great deal of cultural diversity among Alberta's First Nations. Three language families have been identified (Algonquin, Athabaskan, Siouan), and within these three there are twelve differentiations.<sup>9</sup> Chief John Snow (1933–2006) of the Stoney Nation wrote of this cultural diversity with pride, stating:

The word Sioux conjures up the whole of the rich history and culture of the Plains—Sitting Bull, the Custer Battle, great buffalo hunts, magnificent eagle-plume headdresses, and beautiful quill-decorated buckskin clothing. This is the heritage we share with the Dakota and the Assiniboine and the Oglala through our language-family connections. Our other neighbours were the Algonkian-speaking people—the Ojibway, the Cree, and the Blackfoot—with whom blood feuds were a continual fact. Nearby, too, were smaller groups, such as the Athapascan-speaking Sarcee. To the west our contacts were with the people of the mountains, the Kootney, the Shuswap, and occasionally the Flathead; our relations with these were somewhat more cordial, but not always peaceful.<sup>10</sup>

First Nations' experiences with colonization and attempts at assimilation have also varied based on location and other aspects of geography.<sup>11</sup> Some have been impacted by oil and gas development, while others have had both opportunities and challenges posed by external economic development. At Morley, natural gas wells have been dug and the royalty payments have allowed capital expenditures on the reserve, especially on housing and administrative buildings.<sup>12</sup> Yet there is still much development to be done in order to counterbalance the legacy of colonialism on the plains.

The history of residential schools in Canada affected all Aboriginal communities. Alberta had twenty-five recognized residential schools, the highest number of any province in the country. These schools initially began in the 1870s, with the last school closing in 1996.<sup>13</sup> Residential schools were a combined assimilation project implemented by Christian churches in Canada and enforced by the federal government. Government officials, especially Indian agents who lived and worked on reserves, endeavoured to ensure that all Aboriginal children were placed within an institution and given a rigid education in Western beliefs, culture, and religion. Children were often forcibly removed from their homes and taken far away to schools, as colonial opinion held that the Aboriginal family posed a dangerous influence over the child's development. The separation from family, culture, and identity left deep scars on these students, many of whom were also subject to emotional, physical, or sexual abuse within the system. This legacy is still felt in Aboriginal communities, which have higher rates of addiction, violence, and disease than other populations in Canada.<sup>14</sup> In Alberta, it is still true that a disproportionate number—at least 64 per cent—of children in the child welfare systems are Aboriginal.<sup>15</sup>

Today, the health of the First Nation communities in Alberta is of great concern to both Alberta Health Services (AHS) and to researchers in the University of Calgary's Cumming School of Medicine. Physicians, professors, and health-care workers are involved in many initiatives to identify health-care problems within these communities and to provide engaged, culturally informed, and safe health-care services. The creation and expansion of the Group for Research with Aboriginal People on Health (GRAPH) through the O'Brien Institute for Public Health, along with extensive faculty involvement in Aboriginal health research, demonstrate the determined contribution of members of the Cumming School to the betterment of Aboriginal health. Yet a more sustained focus on Aboriginal health has only picked up since 2009 within the school. The current initiatives resulted from the efforts of many individuals who pushed to bring Aboriginal health and First Nations people into the mandate of the faculty. This has been a long—and often frustrating—process for those involved.<sup>16</sup> It began in the 1970s with the building of the Stoney Health Clinic at Morley, and has culminated in the creation of the Aboriginal Health Program, the GRAPH research group, and many individual

research projects and clinic outreach programs initiated by Cumming School physicians and scholars.

## The Development of the University of Calgary Faculty of Medicine

The Faculty of Medicine at the University of Calgary was a late addition to the Canadian medical community. Other faculties were established much earlier in the West, with the University of Manitoba opening a medical college as early as 1883<sup>17</sup> and the University of Alberta founding its own medical faculty in 1913.<sup>18</sup> Alberta has been a major player in Canadian medicine since the 1920s. The province distinguished itself in public health through the building of new hospitals and mental-health facilities, the introduction of new clinics and sanatoria focused on the treatment of tuberculosis and polio, as well as a dramatic increase in resident physicians between 1900 and 1950.<sup>19</sup> The University of Alberta implemented its own MD training program as early as 1908, and in 1922 it became the first faculty of medicine in Canada to control its own hospital.<sup>20</sup> In contrast, the University of Calgary's medical faculty was not founded until 1967. The original intent of the faculty was to serve as a training program for family physicians rather than as a faculty with major biomedical research agendas and institutes. These physicians would help fill the shortage of family doctors throughout Alberta, especially in rural areas. Despite this fact, the faculty grew significantly into a leading research faculty.<sup>21</sup>

Dr. Bill Cochrane played a large role in the initial founding of the faculty. In 1966, he was invited by the university to visit Calgary and possibly take on the deanship of the new medical school. Yet as he described it when he arrived, "there was no school, no students, no program, and no faculty."<sup>22</sup> He nonetheless took on the challenge of starting the school and the faculty admitted its first class of students in 1970. The original program was only three years long (compared to the North American standard of four years) and it primarily focused on community health sciences and family medicine. In 1975 a new Health Sciences Centre was constructed adjacent to the Foothills Hospital and the Faculty of Medicine was moved away from the main campus to this new location.<sup>23</sup> The new location led to an improved integration of teaching and learning within

the program and enabled the development of a larger research community within the Faculty. Resident physicians developed expertise in psychiatry, rheumatology, and postpartum care.<sup>24</sup>

## Early Involvement in Aboriginal Health at Morley

The faculty undertook its earliest ventures into Aboriginal health research from the beginning of its clinical and educational programs. Even before the medicine program accepted its first class of students, the Faculty of Medicine was working closely with the Stoney people at Morley to improve on-reserve access to medical care.<sup>25</sup> Dr. Cochrane collaborated with both the Stoney Tribal Council and the Medical Services Branch of the Department of National Health and Welfare (MSB) to plan the building of a clinic on the Morley reserve.<sup>26</sup> The conceptual design for the clinic was partly based upon a research report undertaken by three university physicians and three medical students in 1970. The report was compiled through direct investigations of individuals on the Morley reserve. The researchers conducted interviews with Aboriginal residents, faculty members who had experience working on the reserve, nurses who worked with the Native population, representatives of the MSB, and even teachers who worked in the day school.<sup>27</sup> This research was undertaken to help the Faculty of Medicine, the Stoney Tribal Council, and the MSB alike to gain insight into the types of medical services most required in the community and the best way to provide a culturally engaged and community focused clinic. The medical situation at the time was dire and access to health care by reserve residents was minimal. There were only two traditional medicine men on the reserve that could be consulted. Otherwise, one Calgary general practitioner held two “office hours” at the nearby nursing station once a week. For emergency care, residents were required to go off reserve to an urban hospital. Many residents reported avoiding this, as they disliked “the impersonal, frightening and dehumanizing atmosphere” of large hospitals—especially of the Foothills Hospital, where they felt “strange, lost and almost unwelcome.”<sup>28</sup> This feeling prevented individuals from receiving timely care, which in time led to further complications.

The study found that the medical needs of the community at Morley were largely influenced by the population’s unique characteristics. The “Plains Peoples”—referring to the Blackfoot, Stoney, Blood, Sarcee

and Peigan tribes—had seen a significant population increase during the twentieth century, such that by 1970 they comprised 40 per cent of Canada's Aboriginal population.<sup>29</sup> Unfortunately federal neglect of health-care programs on reserves, and the devastating impact of the Indian residential school system led to significantly shorter lifespans among these people.<sup>30</sup> The negative health impact still continues today: while the life expectancy of the average Canadian female is about 82 years, for First Nations females it is about 75 years. Similarly, the life expectancy in other Canadian males is about 77 years, while among First Nations males it is at 70 years.<sup>31</sup>

At Morley, the researchers found a mixture of “a high birth rate; high infant mortality rates; extremely high fertility rates; a concentration [of population] on reserves with only a small exodus to the urban centres.”<sup>32</sup> These factors combined to make Morley an extremely young population, with 59 per cent of the residents under the age of nineteen.<sup>33</sup> Unsurprisingly, researchers—identified as medical students David MacLean, Michael Davidson, and Warren Davidson, along with Drs. Donald Erik Larsen (1933–2017), Edgar (“Ed”) J. Love (1931–2013) from the Department of Community Health Sciences, and external research associate Irving J. Rootman—found that the health care priorities reported by the individuals interviewed reflected this age distribution. Residents at Morley requested a focus on maternity care, with prenatal care integrated into on-reserve health services. A focus on family planning programs was also requested. Daycare services were deemed essential to enable single and ill parents, working mothers, and neglected children options for alternative child care. The need for better transportation was highlighted many times, so that trauma patients could receive timely treatment. Lastly, the people at Morley wanted a clinic with a large, welcoming, and comfortable waiting room. The researchers recognized that this aspect of a clinic “may be one of *the* most important in meeting their needs.”<sup>34</sup>

The report was well received, and the planning of the clinic was soon underway. The Tribal Council nominated a health council through the appointment of five Stoney members. The first health council was made up of Wallace Snow, Richard Amos, Tina Fox, Georgina Wilfred, and Wilfred Mark as chairman.<sup>35</sup> It was agreed that two physicians from the university would be present at all of the council's meetings, though they held no voting power on matters under discussion. In this way, the Health Council was able to exercise a significant amount of control over the clinic's development



FIGURE 2. Wilfred Mark accepting the keys from Dr. Otto Rath, marking the opening of the Stoney Health Centre, June 1972. Courtesy of the University of Calgary Archives, 84.005\_13.05.

and early administration. The Faculty of Medicine was responsible for providing two physicians to staff the clinic—both family practitioners—while the minister of hospitals and medical care (hereafter referred to as “the minister”) remunerated the university for the presence of the physicians in the clinic. The agreement stated that a physician would be present in the clinic for five half-day sessions of four hours each week.<sup>36</sup> Additionally, the clinic was to have a strong educational component, with a focus on community outreach programs. The Stoney Health Centre successfully opened on 6 June 1972. Its founding was highly celebrated as a success of the Stoney people and the University of Calgary Faculty of Medicine (see figure 2).

The partnership between the Stoney Nakoda and the Faculty of Medicine ran smoothly for the first few years. Indeed, the clinic itself was very successful: almost four thousand visits were made to the centre in 1973 alone.<sup>37</sup> Unfortunately, problems began to arise in the late 1970s. The health council expressed worry over how Stoney people were treated at the Foothills Hospital when they visited for referred medical services. There was also frustration with certain members of the staff at the Stoney Health Centre and a concern that there was not “a single doctor” that the Stoney people could identify with.<sup>38</sup> When the centre was first established, community opinion highlighted the desire for physicians that would actively engage with the community. In 1973, an evaluation report was put together by Dr. Joan Ryan, a researcher with the Department of Community Health Sciences. Stoney people who were interviewed for the report stated that “in order to become familiar with Stoney people, and therefore to treat them effectively, the doctors should become more involved with the people in the community and attend community events.”<sup>39</sup> This requirement was felt to be unfulfilled, and this caused continued friction between the physicians and the Morley community.

The physicians employed by the university were also dissatisfied with the relationship.<sup>40</sup> There was a continued concern over the safety of caregivers while at the centre, since they often encountered verbal abuse and even physical assaults while on shift. The director of the Stoney Health Centre, Dr. John A. Cunningham (1925–2019), highlighted this concern in 1977 when he wrote to Dr. William M. Gibson (b. 1930), the head of the Division of Family Medicine at the university. Cunningham emphasised recent troubles he had encountered while treating patients.<sup>41</sup> In his letter responding to Dr. Cunningham, Dr. Gibson outlined the similar experiences reported by other staff at the centre:

We have had threats of violence, indeed on one or two occasions violence directed at doctors or nurses working there, many instances when insulting remarks were made to our medical staff, some documented, others merely commented on, and altogether it has been an unsatisfactory state of affairs.<sup>42</sup>

In February of 1978 a special meeting was held to discuss these problems and the Tribal Council decided to “terminate its agreement with the University



due to their dissatisfaction with services being offered by university personnel at the Health Centre.<sup>43</sup> The university officials who were present at the meeting, medical educator Dr. Lawrence A. Fischer and pathologist Dr. Kenneth A. Buchan managed to talk the health council out of the termination, but the result was a renegotiation of the terms surrounding the partnership. The director of the health centre, Dr. Cunningham, was to be removed from his position that year and the university agreed to approach new, council-chosen physicians to be involved in the clinic. Previously, the university had often sent different physicians to work at the centre based on availability, and both the patients and the health council disliked the fact that this setup resulted in a lack of continuity in care. The new conditions were written up and a new agreement was signed between the Stoney Tribal Council, the minister, and the Faculty of Medicine that year.<sup>44</sup>

Although the dispute of 1978 was solved, problems persisted within the partnership. Later in the year, reports of physical and verbal assaults on the physicians at the centre led the faculty to stop scheduling overnight shifts for safety reasons.<sup>45</sup> Other problems were noted with staff neglecting their duties at the centre, especially in the case of reserve on-call ambulatory drivers.<sup>46</sup> The tensions reached their peak in 1984 when one of the university physicians was abruptly fired by the Stoney Council. This led to the subsequent resignation of the other two physicians who worked at Morley, and ultimately ended the U of C Faculty of Medicine's involvement with the Stoney Health Centre.<sup>47</sup>

## Aboriginal Health at the University of Calgary and in Canada, 1985 to 1995

In 1980, the provincial government provided the U of C Faculty of Medicine with new opportunities for growth by founding the Alberta Heritage Foundation for Medical Research (AHFMR). Financial contributions from the AHFMR allowed the faculty to begin recruiting physicians and health-care workers at an accelerated rate. In the 1980s, the faculty recruited more than one hundred new biomedical and health-care researchers.<sup>48</sup> The previous focus on family care and clinical practice was eclipsed by a new focus on innovative biomedical and health-care research. Yet the initial patient-focused character of the faculty still exerted a profound



impact on the development of the growing school. Indeed, these initial traditions led to a focus on what would come to be termed “translational medicine.”<sup>49</sup> Faculty researchers proposed projects that utilized the faculty’s ideal location—adjacent to the Foothills Hospital—to find ways of translating new advances in laboratory research into improvements in patient care and treatment. The sudden expansion of the faculty from its new hiring program provided the impetus to build a new building on site dedicated solely to research. Financial contributions from the AHFMR allowed for the construction of the Heritage Medical Research Building (HRMB) in November of 1987, and these enabled many basic research programs to flourish (e. g., in cardiovascular, inflammatory, and neuroscientific research).<sup>50</sup>

Although this was a time of research growth and development for the faculty, Aboriginal health was not included within this new emphasis on research. The faculty took a step back from Aboriginal relations after the university ended its involvement at Morley. This retreat was seen in the lack of Aboriginal presence within either the faculty or the student body for the next two decades. Aboriginal students nonetheless continued to enroll in the university at large during the 1980s and early 1990s, often coming from far away reserves and knowing few members of the university community.<sup>51</sup> On the main campus, a student lounge called the “Red Lodge” was created by the Aboriginal students to decrease this isolation. The lounge was meant to provide Aboriginal students with a space of their own where they could celebrate their culture and socialize away from the atmosphere of the university (see figure 3).<sup>52</sup>

Yet the Aboriginal presence on campus did not spread to the Faculty of Medicine.<sup>53</sup> There were no special considerations in place for the admission of Aboriginal students to the medical undergraduate program, and the number of Aboriginal applicants to that program remained limited. The Faculty of Medicine’s only real involvement with Aboriginal students was through infrequent visits from high school classes on reserve, who were sometimes brought in to tour the laboratories on the medical campus in hopes of increasing future recruitment.<sup>54</sup>

The faculty instead directed its attention to other research areas and would not turn back to Aboriginal health for at least a decade. This was possibly due to the inaccessibility of Aboriginal populations for researchers, as the faculty no longer had ties to local communities. More likely,



FIGURE 3. Image of students in the Native student lounge, December 1972. Courtesy of the University of Calgary Archives, 84.005\_14.43.

however, it is a result of the widespread neglect in Aboriginal health research that was present across Canada at this time.<sup>55</sup> In 1986, Canada hosted an international conference on health promotion, which launched the Ottawa Charter for Health Promotion. The charter described the conference as “a response to growing expectations for a new public health movement around the world.”<sup>56</sup> Health inequities—what came to be known as the social determinants of health status<sup>57</sup>—were found to be a neglected field. This new movement, along with the efforts of individuals in the field of health promotion, created a renewed interest in inequities in the field of public health. Part of this interest was focused on the inequality in health status and living conditions experienced by Aboriginal people in Canada. Aboriginal populations were extremely underrepresented within medical research initiatives.<sup>58</sup> Interest in Aboriginal health topics did not pick up again until the 1990s, once medical programs were well established among reserve populations and community health promotion was a common theme in public health departments across the country.

The renewed interest in Aboriginal health during the late 1990s was expressed in the creation of the Institute of Aboriginal Peoples’ Health (IAPH) within the Canadian Institutes of Health Research (CIHR). The previous Medical Research Council of Canada had lacked such an explicit

focus on Aboriginal health.<sup>59</sup> To counteract this, the idea for an institute dedicated solely to Aboriginal health was generated in 1999, in the midst of discussions about the structure of the CIHR. During a workshop in Winnipeg, physicians Malcolm King, Jeff Reading, and John O’Neil debated the best ways to address Aboriginal health research. Drs. King and Reading were both of Aboriginal descent, and these deliberations led to significant changes in the structure of the CIHR.

It was concluded that rather than having Aboriginal health “embedded in an overarching theme,” an institute of its own would be of the most benefit to the area of Aboriginal health in Canada.<sup>60</sup> In fact, when the CIHR was created the IAPH was one of the thirteen institutes created to manage all national health research funding. Dr. Jeff Reading became the inaugural scientific director, steering the focus of the IAPH toward increased capacity. It was noted that both research and researchers in the area of Aboriginal health were extremely limited.<sup>61</sup> Nonetheless the interest in expanding the field was present and the IAPH dedicated itself to “building capacity, both amongst researchers and within Aboriginal communities to participate in research.”<sup>62</sup> Looking back on the impressive impact the IAPH has made on expanding the field, Dr. Malcolm King, the institute’s second scientific director, commented:

I felt comforted after this beginning that there was so much good will for the idea of an institute dedicated to research on Aboriginal health. It put our newly created discipline on equal footing, at least formally, with the heavyweights such as Neurosciences, Mental Health and Addictions.<sup>63</sup>

Expansion in the field of Aboriginal health was equally reflected among researchers within the University of Calgary. One major researcher in the area of clinical neuroscience was Dr. “Mo” Watanabe, dean of the Faculty of Medicine from 1982 to 1992. After his term as dean, he stayed on as a professor in the medical faculty and undertook research with First Nation’s communities in the late 1990s. He became involved with information technology research among Aboriginal participants and pursued research on how the participatory-action format enabled medical researchers to connect with First Nations communities. Obtaining consent for the research was a difficult process and the project itself needed to be

undertaken with careful attention to its impact within the population. Dr. Watanabe outlines his feelings this type of research later on:

I'm not sure how many people are aware with the depth of concern felt by Aboriginal communities when outside researchers come into their communities. They have to be involved and you must have approval. You must leave a benefit to the community.<sup>64</sup>

The benefit of his research was that it opened the door for other researchers to step into the field and undertake studies within First Nations communities. As dean, Dr. Watanabe led by example and legitimated working with Aboriginal communities as a career goal for Faculty of Medicine clinical and research members. Other faculty involvement with First Nations communities in the 1980s and '90s was, however, limited to individuals who worked in on-reserve clinics, but did so outside of their association with the U of C Faculty of Medicine. They chose to become involved in Aboriginal practice and research on a personal level, and the faculty at this time demonstrated no real interest in encouraging or building upon their activities. This apathy remained in the faculty for many years, even as individual researchers and instructors tried to advocate for official faculty engagement with Aboriginal health.<sup>65</sup>

## The Faculty's Slow Return to Aboriginal Health

In 1995, an accreditation survey pointed out the need for a greater focus on gender and equity within the Faculty of Medicine. The Office of Gender and Equity Issues was soon created in response. This new office established the Gender and Equity Issues Committee with the goal of promoting "equal participation in employment and education for women; Aboriginal peoples; persons with disabilities; and visible minorities."<sup>66</sup> The committee undertook many ventures between 1996 and 1999 aimed at achieving this mandate. It was most successful in the areas of gender and disability equity. The committee hosted many gender symposia and initiated the Positive Space Campaign on the Foothills campus.<sup>67</sup> It brought women's health into the undergraduate curriculum and proposed child-care programs on the faculty's campus to enable students with children greater

opportunities within the school. Through its outreach activities, the committee also created ties with important organizations such as Women in Science and Engineering and the Alberta/NWT Network of Immigrant Women.<sup>68</sup> The committee was also quite successful at implemented changes across the medical campus to improve accessibility within the building, thereby creating an equitable space for individuals with disabilities.

Yet this progress was not reflected in greater Aboriginal equity. The committee focused primarily on gender issues and had little success in implementing changes on campus for Aboriginal students, primarily due to a lack of interest in allocating resources to this area.<sup>69</sup> In 1997, a working group was created within the committee to look at strategies for increasing Aboriginal student recruitment. Titled the Working Group on Recruiting First Nations Students to the Faculty, its mandate was “to review the success of past efforts and to recommend additional initiatives.”<sup>70</sup>

The group was run by Dr. Gordon Fick, a professor in community health sciences with a specialization in biostatistics. It worked closely with the Native Centre on main campus and with the Nechi Institute in Edmonton. Unfortunately, Dr. Fick reported problems with initially finding members to even participate on the committee and the working group’s progress was slow. He commented many times that “it has been most difficult to get any action moving on this project.”<sup>71</sup> After reviewing the number of issues involved with Aboriginal student admissions, Dr. Fick proposed a joint initiative of the faculties in the Health and Education Cluster—clusters were created at the university during this period<sup>72</sup>—aimed at creating outreach programs within high schools. This initiative would present Aboriginal high school students with information about how to apply to the Faculty of Medicine so as to generate interest in future careers within medicine. Sadly, the proposal never went far, as resources were required and funding was not forthcoming.<sup>73</sup>

The working group also found that faculty-defined research strategies lacked any real interest in Aboriginal health. It was only involved in a few minor activities on reserves, including a “Summer Science Project with Tribal 7.”<sup>74</sup> Aside from small projects, there arose some debate within the faculty over whether two spots in the undergraduate program should be reserved for Aboriginal students. Unfortunately, nothing seemed to come of this debate either and no changes were made to the faculty’s official policy. This issue was highlighted in the working group’s final report. One

of the key recommendations was for the U of C Faculty of Medicine to develop an official Aboriginal recruitment policy to enable an equitable application process.<sup>75</sup> The lack of such a policy throughout the 1990s, and even into the early 2000s, demonstrates little concern within the faculty for Aboriginal admissions during this period.

A subsequent accreditation survey in 2000 once again highlighted the absence of concern with Aboriginal admissions or recruitment. Although the university calendar claimed that “the University of Calgary is committed to providing equitable access and participation of Aboriginal people in all its Faculties, programs and services,” the lack of any official policy was a glaring omission in this effort to foster equity.<sup>76</sup> After a review of the U of C Faculty of Medicine’s policies and philosophy, the Committee on Accreditation of Canadian Medical Schools (CACMS) requested that the faculty develop “an institutional policy regarding the diversity of the student body.”<sup>77</sup> A similar request was made in the same year by the Liaison Committee on Medical Education (LCME), which in a report to the Faculty of Medicine they requested that an “institutional policy regarding gender, racial, cultural and economic diversity of the student body” be implemented.<sup>78</sup> Although these recommendations were made, the medical faculty’s admissions policies remained unchanged and these requests by the CACMS and LCME were disregarded. The issue would be put aside until the next accreditation period.

This is not to state that the Faculty of Medicine completely ignored the issue of Aboriginal health and equity. In December 2004, the faculty created the Aboriginal Health Task Force. This task force was led by Dr. Lindsay Crowshoe, an Aboriginal physician and member of the Treaty 7 Piikani Nation recently hired into the faculty. The goal of the task force was to “provide recommendations to the deans of medicine that address the health needs of Aboriginal people.”<sup>79</sup> Other participants in the study included a number of individuals of Aboriginal backgrounds and a selection of faculty members and students from the Faculty of Medicine. The task force recognized that individual access to higher education and professional training is directly correlated with the health of a community. Therefore, it focused on outlining how the faculty could develop strategies and allocate resources to increase the number of Aboriginal medical graduates. In addition, the group sought to “enhance the cultural competence of non-Aboriginal and Aboriginal medical graduates,” in order to enable

physicians and researchers to address the health needs of Aboriginal communities.<sup>80</sup>

Under Dr. Crowshoe's guidance, the task force was well organized and highly productive. It held regular teleconferences and worked hard to meet in person. This commitment allowed for the timely completion of a May 2005 report, within five months of the task force's creation. The report proposed that Aboriginal health concerns would be best met with the creation of an Aboriginal Careers in Medicine Program. The program would regulate and oversee the admissions of Aboriginal students through the creation of five over-quota seats for Aboriginal applicants. Because they were over-quota, the spots available for Aboriginal students would not detract from the total spots available for other applicants for the Undergraduate Medical Education (UME) program, and would be separately funded by the Aboriginal Careers Program. These seats would be competitive and require a second interview with an Aboriginal interview panel and an essay demonstrating the applicant's connection to the Aboriginal community.<sup>81</sup> The program would have full-time professional and support staff, an Aboriginal admissions committee, and would be in charge of supporting the students admitted to the positions throughout their course. The report outlined a detailed budget for the proposed office, totalling \$613,000 a year.<sup>82</sup>

The Admissions Committee officially approved the proposal in December of 2005 for the following year.<sup>83</sup> With these promising steps, it seemed as though the Faculty of Medicine was finally willing to recommit itself to the area of Aboriginal health and recruitment. It was therefore a great disappointment the next year when the funds promised to the task force for the Aboriginal Careers Program were not forthcoming and the assured over-quota positions were not made available for the 2006–07 academic year.<sup>84</sup> The following year saw a similar disappointment as the faculty continued to neglect its promised funding and commitment to over-quota positions. The envisaged steps toward a commitment to Aboriginal health were therefore abandoned, and the idea for the Aboriginal Careers in Medicine Program fell to the wayside by the end of 2006.<sup>85</sup>

In its place came the Aboriginal Health Program. The creation of the Aboriginal Health Program (AHP) was another important milestone in the U of C Faculty of Medicine. Once again led by Dr. Lindsay Crowshoe, the program was developed out of the Building Aboriginal Health



Teaching and Learning Capacity project, which had begun in 2004. The AHP began as an initiative “to improve Aboriginal health outcomes by building capacity and cultural competence among medical providers and, ultimately, to bridge the voices of Aboriginal patients and physicians through dialogue, mutual respect, and a shared understanding of health practices, needs and concern.”<sup>86</sup> The AHP officially opened its office on the Foothills Campus in 2008. The program’s goals have been three-fold: 1) to recruit excellent Aboriginal students into the faculty and provide support; 2) to educate non-Aboriginal students and practitioners to be culturally competent; and 3) to encourage research in the area of Aboriginal health.<sup>87</sup> The program has since reached out to local junior high and high schools, both on and off reserves, to encourage young Aboriginal students to “recognize medicine as a potential career.”<sup>88</sup> The program’s recruitment activities are now quite diverse, involving such things as presentations given at schools and conferences, hands-on demonstrations, school visits to the university campus, medical simulation programs, and a medical student mentorship program. These activities are all free of charge and supported through the funding of the program itself, to address Aboriginal issues within the Calgary UME program.<sup>89</sup> This is an important faculty initiative as it works to bring new Aboriginal students into the medical community and encourages Aboriginal youth to strive for higher education. The creation of the AHP marked a turning point for the school, as it was finally committing to initiatives in Aboriginal health.

Yet one item that was still absent from the Faculty of Medicine was an official Aboriginal recruitment policy. In the LCME’s 2007 mock accreditation survey, the reviewers expressed surprise that no official policy had yet been implemented, despite numerous recommendations to that end. It was noted that

the reviewers were concerned that we have been addressing the student diversity standard and Aboriginal issue for the past 8 years but have not clearly articulated our goals, objectives and plans for obtaining them with regards to increasing Aboriginal students in our student population and supporting them while they are here.<sup>90</sup>



The LCME concluded in an interim report that “the Faculty had progressed towards but had not achieved full compliance with the expectation that there be institutional policies and plans for the recruitment and retention of applicants of Aboriginal heritage.”<sup>91</sup> The mock survey pointed out that the lack of an official recruitment policy was preventing the faculty from reaching its long-professed goal of diversity on campus.

In response to this criticism, the Faculty Admissions Committee put together a planning subcommittee to outline important guidelines for a potential recruitment policy. The subcommittee studied the policies of other faculties of medicine at different Western Canadian universities and found that, on average, other faculties had five reserved spots for Aboriginal students.<sup>92</sup> No such policy was present in Calgary, but research into the number of Aboriginal students admitted to the faculty each year found that the admission of Aboriginal students often accounted for around 1.7 per cent of the student population, or four to five Aboriginal students a year.<sup>93</sup> However, the Calgary faculty was against the idea of “minimum quotas” and instead sought “to attract and accept appropriate numbers of Aboriginal medical students each year” through a non-quota strategy.<sup>94</sup> To this end, the planning subcommittee created a report in 2007 recommending that a recruitment policy be guided by the following four principles:

- a. Ensure that all students meet the necessary cognitive and non-cognitive attributes required to succeed in the Faculty of Medicine and in medical practice.
- b. Not segregate the selection of Aboriginal students from other students to such an extent as to create an exclusive group of students.
- c. Recognize the challenges of Aboriginal students while remaining fair to all applicants.
- d. Allow for the recruitment of sufficient numbers of Aboriginal students to address the under representation of Aboriginal people in the University and in the profession of medicine.<sup>95</sup>

After taking these guidelines into consideration, the Faculty of Medicine released its long-awaited policy on Aboriginal recruitment in 2008.<sup>96</sup>

The faculty did not stop at merely formulating such a recruitment policy. It went on to commit funding to support the creation of a new position dedicated to facilitating the recruitment of Aboriginal students. This position was titled Aboriginal program officer and was fully funded by the end of 2008.<sup>97</sup> The officer was in charge of establishing links with local Aboriginal and Métis communities and organizations to promote the program and recruit applicants. They also provided ongoing program support and acted as a guidance officer to Aboriginal students within the faculty. With the creation of this position, the faculty declared its intention to “promote appropriate class diversity and . . . achieve the Faculty’s goals on an appropriate number of excellent students of Aboriginal heritage each year.”<sup>98</sup> After a prolonged delay, the faculty had finally taken meaningful steps towards an official policy promoting Aboriginal health and education. It would continue down this path the following year (2009) as well, with the creation of the Calgary Institute for Population and Public Health.<sup>99</sup>

## Aboriginal Health Care and the Program Activities in the Institute for Public Health at the University of Calgary

The Calgary Institute for Public Health was officially formed in April of 2009 as a partnership between the University of Calgary Faculty of Medicine and the AHS, yet the relocation and further staffing had to await the refurbishing of the basement area and first floor of the Teaching, Research and Wellness (TRW) Building on the Foothills campus the next year.<sup>100</sup> The perceived need for such an institute was based on the fact that while the Faculty of Medicine had organized its research into formalized institutes, the community and public health portfolio was not well represented in this structure. Originally named the Calgary Institute for Population and Public Health, the new name—the Institute for Public Health (IPH)—was adopted in 2011 and, after receiving a sizable donation from the Calgary-based O’Brien family, it was renamed the O’Brien Institute for Public Health in 2014. The institute began to operate in 2010.<sup>101</sup> Its 2009 strategic plan outlined the institute’s priorities as follows:

Importantly, the Institute will aim to improve health care delivery and population health through a shared research agenda and knowledge exchange between providers, AHS-CZ [Calgary Zone] researchers, and academic researchers, to promote the implementation of new approaches resulting from joint research and knowledge transfer and exchange. The research itself will have a positive impact on the health and well-being of the people of Calgary, Alberta, and Canada and may also have a global or international scope, depending on the nature of the research conducted under the auspices of the Institute and its membership.<sup>102</sup>

The creation of this seventh institute for research—which soon attracted membership from a number of other university faculties as well as AHS—gave a new prominence to health services and public health research. A review by an international scientific advisory group in October 2013 recognized the institute’s rapid ascension within the province, and emphasized in particular the leadership of the scientific director and assistant director:

The Institute for Public Health has demonstrated commendable accomplishments in the academic realm since its creation, has attracted a cadre of talented and enthusiastic researchers and has clearly benefited from exceptional scientific leadership from Bill Ghali and more recently Lynn McIntyre. The Institute has earned considerable respect from both researchers and knowledge users in the health system in Alberta. It is clearly a major asset to the University of Calgary and to the Province and is poised to make much greater contributions.<sup>103</sup>

In June 2011, the IPH formed research groups to advance its mission. One of the seven groups that applied and was accepted was the GRAPH research group. GRAPH’s mandate was to encourage research that aided Aboriginal communities in achieving well-being. GRAPH, in alignment with the CIHR, embraced research in any of the four pillars commonly identified by the CIHR (biomedical, clinical, health systems and services, and population health). Research that incorporated interdisciplinary perspectives, collaborated with Aboriginal communities, respected cultural

safety, and resulted in advocacy for health equity was to receive particular emphasis.<sup>104</sup>

The founding lead for the GRAPH research group was Dr. Wilfreda E. Thurston, a population health researcher in the Department of Community Health Sciences, jointly appointed to Ecosystem and Public Health in the Faculty of Veterinary Medicine. She was greatly assisted by Dr. David Turner, who at the time was the Aboriginal research coordinator in her program of research. Dr. Turner has been affiliated with the Saulteaux Nation of Saskatchewan and has since transferred in to the aboriginal health portfolio of the AHS. Dr. Thurston was a co-investigator on the Alberta Networked Environments for Aboriginal Health (NEAHR) grant. The principle investigators were Dr. Cora Voyageur, a member of the Athabasca Chipewyan First Nation and Dr. Lindsay Crowshoe. Dr. Voyageur was in the Department of Sociology and Dr. Crowshoe in the Department of Family Medicine. Dr. Turner was a staff person for NEAHR, building relationships between non-academic community members and academics. He also assisted in organizing the first workshop to be run at the university on Aboriginal research for the Faculties of Medicine and Veterinary Medicine, entitled *Conducting Research With (Not On) Aboriginal Peoples*, held on 3 December 2010 at Blackfoot Crossing in Siksika.<sup>105</sup> The workshop was jointly sponsored by the Department of Ecosystems and Public Health in the Faculty of Veterinary Medicine; the Department of Community Health Sciences in the Faculty of Medicine;<sup>106</sup> the Calgary Institute for Population and Public Health;<sup>107</sup> and NEAHR. Drs. Thurston and Turner also recruited Ms. Sharon Goulet, a Métis woman working in the Aboriginal portfolio of the City of Calgary Family and Community Support Services, to the GRAPH Executive Committee.<sup>108</sup>

The founders of GRAPH developed a Community Advisory Committee in 2012 to ensure that Aboriginal health research at the University of Calgary was informed by community stakeholders. This committee included representation from the Alberta First Nations Information Governance Centre (AFNIGC), the City of Calgary, corporations with Aboriginal-relations leaders, and non-governmental organizations. The research group received \$2,000 each year from the IPH between 2012 and 2014.<sup>109</sup> GRAPH used this funding to sponsor external speakers, support an annual research forum (the first was held on 20 September 2013), and increase local and national exposure. GRAPH was responsible for arranging

speakers for two seminars in the academic year for the weekly joint IPH and Department of Community Health Sciences rounds.<sup>110</sup> Terms of reference for GRAPH and the Community Advisory Committee were developed and fundraising began through the Cumming School of Medicine Fund Development Office. These efforts originally focused on the creation of a research chair in Aboriginal health research.<sup>111</sup>

At the beginning of the second year, Dr. Cheryl Barnabe, a Métis rheumatologist and health researcher in the Departments of Medicine and Community Health Sciences, agreed to take on the leadership role. Dr. Barnabe is a clinician researcher who received the Canadian Rheumatology Association Young Investigator Award for 2014 in recognition of her significant contributions in epidemiology and health services research in rheumatic diseases, particularly in addressing disparities in access to care for the Aboriginal population. Under her leadership, a strategic work plan was developed for the 2014–17 period, an information brochure produced, a monthly research seminar organized, and regular meetings of the executive held.<sup>112</sup>

In the meantime, Wilfreda E. Thurston and David Turner continued to work with the medical school's Fund Development Office. The focus for fundraising shifted from a chair in Aboriginal research to support of GRAPH research infrastructure and a chair or professorship in Aboriginal wellness. Linkages were also made with the emerging Cumming School of Medicine pipeline program, developed for the bachelor of health sciences (BHSc) in which

Students within the program would complete their undergraduate BHSc program at the U of C, while also benefitting from a supportive educational program to supplement their education and to maximize their chances of success. Applicants will be guaranteed admission to the MD program following successful completion of the undergraduate degree, assuming that pre-defined criteria are met. The goal of the program will be to ensure that sufficient supports are put in place to maximize the chances of success.<sup>113</sup>

As of January 2015, ongoing fundraising efforts were increased with the agreement of Charles Weaselhead, the grand chief of Treaty 7 Management

Corporation and chief of the Blood Tribe, who, along with Andrea McLandress from the Tervita Corporation, agreed to act as an advisor. Health is one of five core areas identified by the Treaty 7 Management Corporation, and a health secretariat provides advice to the health directorates in each Treaty 7 community. Chief Weaselhead was also a member of the board of the First Nations Information Governance Centre and its Alberta arm, the AFNIGC. Ms. McLandress, a Métis woman born in Manitoba, was an Aboriginal liaison working with communities around Alberta, where Tervita was partnering with oil and gas companies.

## Towards a Mutual Understanding of Research-Ethics Concerns Regarding Health-Care Research with Aboriginal People

One of the outcomes of GRAPH was the linkage of the AFNIGC with the Conjoint Health Research Ethics Board in 2013. The AFNIGC is governed by a board and is responsible for administration of the First Nations Regional Longitudinal Health Survey and the First Nations Education, Employment and Early Childhood Education Survey in Alberta. It is part of the national First Nations Information Governance Centre (FNIGC). The members of the AFNIGC board are the elected chiefs of Alberta in territories covered by Treaties 6, 7, and 8; thus, the AFNIGC is accountable to the chiefs.<sup>114</sup>

The FNIGC trademarked OCAP™ (Ownership, Control, Access and Possession)<sup>115</sup> as its guiding principles for research with Aboriginal peoples and the protection of data, traditional knowledge,<sup>116</sup> and all information collected from First Nations by researchers. The AFNIGC educates First Nations community members and leadership about OCAP™. University researchers are also required to uphold principles covered in the Canadian Tri-Council Policy Statement on research Involving the First Nations, Inuit, and Métis Peoples of Canada, which are consistent with OCAP™. Both OCAP™ and the Tri-Council policy represent growing recognition in the broad Canadian context that research done in the past with Aboriginal peoples was not always respectful, helpful, or even shared with them at any time. In some cases, past research was actually harmful.<sup>117</sup>

In continued collaboration with stakeholders, including Treaty 7 Management Corporation, the AFNIGC, and Aboriginal Friendship Centres, GRAPH have set out to promote training and research in the social determinants of health for Aboriginal people while recognizing diversity between populations and groups, and to advocate for the expansion of the cadre of informed and culturally competent scholars. In 2014, for example, GRAPH was developing a proposal for a summer school on Indigenous research methods for community members as well as academic researchers.<sup>118</sup> GRAPH has also proposed to seek solutions to institutional barriers that impede Aboriginal research. Such barriers include granting agencies' lack of recognition of the extra time it takes for researchers to build relationships with Aboriginal communities or to obtain the participation of members in proposal development. GRAPH, through the BHSc pipeline, hopes to identify Aboriginal students who would like to go on to graduate training, thus adding to the number of Aboriginal health researchers in Canada. Through ongoing relationships with the AHS Aboriginal Health Program, GRAPH hopes to build a knowledge-exchange process that will influence health programs and policies provincially. This will include promoting multi-sectorial and multi-level research that helps create culturally appropriate services that address all of the determinants of health.

With a focus on the determinants of health, GRAPH has promoted research that addresses issues not generally considered in the health sector, such as the disproportionate number of Aboriginal children in foster care and among the homeless.<sup>119</sup> Thus, proposals have been developed with the participation of members of the U of C Faculty of Social Work and with colleagues from the University of Alberta and the University of Lethbridge. Homelessness research has been done in partnership with the Calgary Friendship Centre, Calgary Homeless Foundation, Alpha House Society, Awo Taan Healing Lodge, and Elbow River Healing Lodge, and thus has reached into the local communities. Leadership has been provided in proposed development of a national network on Aboriginal homelessness research. As funding becomes available, GRAPH can be expected to provide increased leadership in Southern Alberta and the Campus Alberta Health Outcomes and Public Health initiative.<sup>120</sup>

## Conclusion

When the University of Calgary Faculty of Medicine was founded it had promising connections to Aboriginal communities and was engaged with researching the medical needs of Aboriginals. Dean Bill Cochrane instigated this program in 1970 when he partnered with the Stoney Tribal Council and the Medical Services Branch of the Department of National Health and Welfare to plan the construction of a health clinic on the Morley reserve. Unfortunately, this relationship became tense at the end of the decade, and growing tensions between doctors and patients at the centre led the university to end its relations with the clinic.<sup>121</sup> Thus began a long hiatus for the faculty's official involvement with First Nation's communities, as the faculty focused on expanding elsewhere, particularly into biomedical research and translational medicine. The 1980s and '90s were a time of accelerated growth within the faculty, but this growth did not include an interest in Aboriginal health.

This began to change in the late 1990s, when an accreditation survey indicated the need for an office of gender and equity within the faculty. The resulting Gender and Equity Issues Committee began in 1996, and it worked to bring Aboriginal health back into the faculty's mandate. Although the committee's suggestions for action varied over time, the idea of revisiting Aboriginal issues within the faculty was continuously brought forward. In 2000, another accreditation report again stressed the need for clearly defined policies regarding diversity in the faculty. The formation of the Aboriginal Health Task Force in 2004, and the development of an Aboriginal Health Program in 2007, were the first real breakthroughs in the struggle to make Aboriginal health a priority in the faculty. By 2008, the faculty had developed an official policy regarding Aboriginal student admissions to undergraduate medical education. It also created the position of an Aboriginal recruitment officer, to support recruitment for the Aboriginal program.

From 2009 on, these efforts to increase attention to Aboriginal health issues were aided by a number of factors. These included the creation of, and recruitment of faculty to, the Faculty of Veterinary Medicine, as well as the efforts of Dr. Susan Kutz, who had long-term relationships with Indigenous communities in northern Canada. This increased the profile of research in Aboriginal communities and aided the faculty's refocusing



on Aboriginal health. The University of Calgary 2012 Academic Plan also supported the work of GRAPH, as it called for the creation of a recruitment strategy for Aboriginal students.<sup>122</sup> The creation of the IPH was, however, the greatest opportunity for increasing research with Aboriginal peoples. The institute could make Aboriginal research a priority by supporting GRAPH even though the medical faculty's strategic plan for that period did not. Mr. Turner's ongoing relationship with GRAPH insured that his extensive positive working relationships, both provincially and nationally, could be called upon to support GRAPH. The close relationship between the IPH and the Department of Community Health Sciences provided the strength in population health research and community engaged scholarship that are congruent with growing Aboriginal requirements for meeting local and community needs. The role played by the members of the Department of Community Health Sciences in the promotion of an Aboriginal health agenda may be attributed to individual representatives and their powerful focus on inequities.<sup>123</sup>

The drive for change within the faculty was led by a number of individuals who strove to bring the idea of Aboriginal health to the fore. Physicians associated with the faculty have reached out to First Nations communities on a personal level, dedicating their time and effort to clinical work, patient care, and Aboriginal-focused research projects. Official faculty support for such efforts is a more recent development, seen most prominently in the creation of the AHP. Yet there are still many areas for growth. Further steps toward community engagement would create essential links between the faculty and local First Nations and other Aboriginal communities. The connections with Chief Weaselhead represent an important step toward official faculty engagement, but more work is needed to solidify the position of Aboriginal health research at the university. To do so would enhance the university's access to the networks that were developed across Canada by the CIHR Institute of Aboriginal Peoples' Health, as well as to research funding. More importantly in the long term, further engagement with Aboriginal communities can help contribute to reconciliation and health equity among Indigenous populations.

## NOTES

- 1 For more information, see Maureen Lux, *Medicine That Walks: Disease, Medicine and Canadian Plains Native People, 1880–1940* (Toronto: University of Toronto Press, 2001), and James Daschuk, *Clearing the Plains: Disease, Politics of Starvation, and the Loss of Aboriginal Life* (Regina: University of Regina Press, 2013).
- 2 Government of Alberta, *Aboriginal Peoples of Alberta: Yesterday, Today, and Tomorrow* (Edmonton: Alberta Aboriginal Relations, 2013), 4.
- 3 See Canadian Constitution Act, 1982, sec. 35, “Rights of the Aboriginal Peoples of Canada,” available at <http://laws-lois.justice.gc.ca/eng/const/page-16.html> (accessed 20 November 2014).
- 4 The Indian Act is available at <http://laws-lois.justice.gc.ca/PDF/I-5.pdf>.
- 5 Alberta Health Services, *Alberta Aboriginal People and Communities* (Calgary: Aboriginal Health Program, 2011).
- 6 Aboriginal Affairs and Northern Development, “First Nations in Alberta” (Ottawa, 2013).
- 7 Government of Alberta, *Aboriginal Peoples of Alberta*, 29.
- 8 Wilfreda E. Thurston, Andrea Soo, and David Turner, “What is the Difference between an Aboriginal Person who is Homeless and a Non-Aboriginal Person who is Homeless?” *Pimatisiwin: A Journal of Indigenous and Aboriginal Community Health* 27 (2013): 1–17.
- 9 Alberta Health Services, *Alberta Aboriginal People and Communities*.
- 10 Chief John Snow, *These Mountains Are Our Sacred Places: The Story of the Stoney People* (Calgary: Fifth House, 2005), 3.
- 11 Government of Alberta, *Aboriginal Peoples of Alberta*, 2.
- 12 Snow, *These Mountains Are Our Sacred Places*, 191–2.
- 13 “Canada’s Residential Schools: The History, Part 1. Origins to 1939,” *The Final Report of the Truth and Reconciliation Commission of Canada*, vol. 1 (Toronto: James Lorimer and Company, 2015), 4.
- 14 Health Canada, *A Statistical Profile of the Health of First Nations in Canada: Determinants of Health 2006 to 2010* (Ottawa: Health Canada, 2014).
- 15 Government of Alberta, “Closing the Gap between Vision and Reality: Strengthening Accountability, Adaptability and Continuous Improvement in Alberta’s Child Intervention System” (Final Report of the Alberta Children Intervention Review Panel, 30 June 2010), <http://humanservices.alberta.ca/documents/child-intervention-system-review-report.pdf> (accessed 30 November 2014).
- 16 See for comparison John Reilley, *Bad Medicine—A Judge’s Struggle for Justice in a First Nations Community* (Victoria, BC: Rocky Mountain Books, 2010).
- 17 Max Rady College of Medicine, University of Manitoba, “History of the Faculty of Medicine,” [http://umanitoba.ca/faculties/medicine/dean/fom\\_history.html](http://umanitoba.ca/faculties/medicine/dean/fom_history.html) (accessed 8 February 2015).

- 18 Robert Lampard, *Alberta's Medical History: "Young and Lusty, and Full of Life"* (Red Deer, AB: published by author, 2008), 7.
- 19 Ibid., 689.
- 20 Ibid., 696.
- 21 See also chapter 1 in this volume by Frank W. Stahnisch.
- 22 Lampard, *Alberta's Medical History*, 422.
- 23 William Pratt, ed., "About the Project," *History of the University of Calgary Faculty of Medicine* (blog), <http://uofcfacultyofmedicinehistory.blogspot.ca/p/blog-page.html> (accessed 1 May 2019).
- 24 See also Stahnisch, chapter 1 in this volume.
- 25 Letter from Otto J. Rath, regional director, Alberta Region Medical Services, to Mr. Lou Crawler, Jr., Stoney Tribal Administration, 15 August 1971, University of Calgary Archives, C-300-10.
- 26 Letter from Wilfred Mark, chairman, Stoney Health Council, to Dr. William A. Cochrane, dean, Faculty of Medicine, 31 May 1972, University of Calgary Archives, C-300-10.
- 27 "Health Service for the Native Canadian, Morley Reserve, Alberta," Faculty of Medicine Committee for the Development of Health Services at Morley, report no. 1948 (196?), available at <http://contentdm.ucalgary.ca/cdm/ref/collection/ucpub/id/68104> (accessed 1 May 2019).
- 28 Ibid., 4.
- 29 Ibid., 2.
- 30 Lux, *Medicine That Walks*, 65–6.
- 31 Natalie Lachance, Fiona Hossak, Sheila Wijayasinghe, Wael Yacoub, and T. Stephen Toope, *Health Determinants for First Nations in Alberta* (Ottawa: Health Canada, 2010), 16.
- 32 "Health Service for the Native Canadian, Morley Reserve, Alberta," 2.
- 33 Ibid., 2.
- 34 Ibid., 7 (emphasis in original).
- 35 Minutes of the Morley Health Centre, Health Council Meeting, 28 September 1971, University of Calgary Archives, C-300-10.
- 36 Agenda of Co-ordinating Council Meeting, 9 January 1975, University of Calgary Archives, C-300-10.
- 37 Stoney Health Centre Medical Services Breakdown, Annual Review 1973, University of Calgary Archives, C-300-10.
- 38 Special Meeting on Stoney Health Centre, 10 February 1978, University of Calgary Archives, C-300-10.
- 39 Dr. Joan Ryan, "Stoney Health Centre Evaluation Report" (1973), University of Calgary Archives, C-300-10, p. 63.

- 40 Dr. William A. Cochrane, "Draft Agreement between the Stoney Band Council and the University of Calgary," 6 May 1971, University of Calgary Archives, UARC 2000.04 file 11.03.
- 41 Dr. John A. Cunningham, director, Stoney Health Centre, letter to Dr. William M. Gibson, professor and head of Division of Family Practice, 29 November 1977, University of Calgary Archives, C-300-10.
- 42 Dr. William M. Gibson, professor and head of Division of Family Practice, letter to Dr. John A. Cunningham, director, Stoney Health Centre, 30 November 1977, University of Calgary Archives, C-300-10.
- 43 Minutes on Special Meeting on Stoney Health Centre, 10 February 1978, University of Calgary Archives, C-300-10.
- 44 Ibid.
- 45 John A. Cunningham, director, Stoney Health Centre, letter to Dr. Lionel E. McLeod, dean of medicine, 10 April 1978, University of Calgary Archives, C-100-10.
- 46 Dr. John A. Cunningham, director, Stoney Health Centre, letter to Dr. Lionel E. McLeod, dean of medicine, 10 April 1978, University of Calgary Archives, C-100-10.
- 47 Dr. Victor N. Sawchuk, letter to Mr. Wilfred Mark, 2 March 1984, University of Calgary Archives, C-100-10.
- 48 Pratt, "About the Project."
- 49 Daniel G. Fort, Timothy M. Herr, Pamela L. Shaw, Karen E. Gutzman, and Justin B. Starren, "Mapping the Evolving Definitions of Translational Research," *Journal of Clinical and Translational Science* 1, no. 1 (2017): 60–6.
- 50 Ibid.
- 51 See, for example, Ian Winchester, "What Can We Do at Canadian Universities to Make Our Indigenous Students Truly Welcome? University of Calgary," *The Journal of Educational Thought (JET)* 49, no. 3 (2016): 227–32.
- 52 Dr. Anthony Rasporich, "Indians and Missionaries in the West" (handwritten notes and background research materials), Anthony Rasporich Fonds 36.01. [text].-[197]-[198].-1 file. UARC 2015.005.
- 53 Jack Peach, *A Shelter from the Winds of Illness: Foothills Hospital, 1966–1991: Celebrating a Quarter Century* (Calgary: Foothills Hospital, 1991), 55.
- 54 Minutes of the Monthly Meeting of the Gender and Equity Issues Committee, 10 December 1997.
- 55 Mary-Ellen Kelm, *Colonizing Bodies: Aboriginal Health and Healing in British Columbia, 1900–50* (Vancouver: University of British Columbia Press, 1999), xv–xiii.
- 56 World Health Organization, "The Ottawa Charter for Health Promotion" (2014), <http://www.who.int/healthpromotion/conferences/previous/ottawa/en/> (accessed 20 November 2014).
- 57 Kelsey Lucyk, *A History of the Social Determinants of Health in Canada through the Lens of the Canadian Public Health Association, 1910–2010: Implications for Present and Future Population Health in Canada* (PhD diss., University of Calgary, 2017).

- 58 Ibid., 86–7; 113.
- 59 Jeff Reading, “The Canadian Institutes of Health Research, Institute of Aboriginal People’s Health: A Global Model and National Network for Aboriginal Health Excellence,” *Canadian Journal of Public Health* 94, no. 3 (2003): 185–9.
- 60 Dr. Malcolm King, email message to Dr. Wilfreda E. Thurston, 8 September 2014.
- 61 Reading, “The Canadian Institutes of Health Research,” 187.
- 62 Canadian Institutes of Health Research, ed., “Year 5 International Review Panel Report 2000–2005,” (June 2006), <http://publications.gc.ca/pub?id=9.688571&sl=0> (accessed 1 May 2019), 36.
- 63 Dr. Malcolm King, email message to Dr. Wilfreda E. Thurston, 8 September 2014.
- 64 Dr. Mo Watanabe, personal interview, 16 June 2014.
- 65 Office of Gender and Equity Issues, Meeting Minutes, 2 June 1999.
- 66 Gender and Equity Issues Committee, “Overview Report of Goals and Accomplishments” (1999).
- 67 The original medical school was housed in space south of the University of Calgary campus and next door to the Foothills Hospital. Over time more university buildings were added, and the campus is now referred to as the Foothills campus or south campus.
- 68 Gender and Equity Issues Committee, Meeting Minutes, 10 March 1999.
- 69 Office of Gender and Equity Issues, Meeting Minutes, 2 June 1999.
- 70 Working Group on Recruiting First Nations Students to the Faculty of Medicine, Office of Gender and Equity Issues.
- 71 Gender and Equity Issues Committee, Meeting Minutes, 2 June 1999.
- 72 Anthony Rasporich Fonds – Series S0002: Administrative Activities [text].–1964–1993.–.6 m. UARC 2015.005.
- 73 Ibid.
- 74 Gender and Equity Issues Committee, Meeting Minutes, 14 January 1998.
- 75 Dr. Gordon Fick, “Final Report of the Working Group on Recruiting First Nations Students to the Faculty of Medicine,” presented to the Committee of Gender and Equity Issues, 1999.
- 76 University of Calgary, “Academic Calendar” (2000), 23.
- 77 CACMS Self Study Report (10 December 2007), 9.
- 78 Ibid.
- 79 Aboriginal Health Task Group, “Aboriginal Careers in Medicine Program: Developing a Policy and Framework for Aboriginal Admissions and Supports at the University of Calgary Faculty of Medicine” (1 May 2005), 26.
- 80 Ibid., 27.
- 81 Ibid., 1–2.

- 82 Ibid., 2.
- 83 I. John Parboosingh and Peter P. Demers, "Continuing Professional Development and Maintenance of Certification," in *The Royal College of Physicians and Surgeons of Canada: The Evolution of Specialty Medicine, 1979–2004*, ed. Henry B. Dinsdale and Gilles Hurteau (Ottawa: Royal College of Physicians and Surgeons of Canada, 2004), 51–67.
- 84 Accreditation Statement, Policy for the Recruitment of Applicants of Aboriginal Background to University of Calgary Faculty of Medicine MD Program, 2007.
- 85 David Holmes, *Redressing the Balance: Canadian University Programs in Support of Aboriginal Students. Report for the Association of Universities and Colleges of Canada 2006* (British Columbia Colleges and Universities, First Nations Pedagogy Online), <http://hdl.voced.edu.au/10707/240436> (accessed on 1 May 2019).
- 86 University of Calgary Faculty of Medicine, "Aboriginal Health Program—About," <http://www.ucalgary.ca/ahp/about> (accessed 8 February 2015).
- 87 Ibid.
- 88 University of Calgary Faculty of Medicine, "Aboriginal Health Program—Recruitment," <http://www.ucalgary.ca/mdprogram/home/specialized-programs/Aboriginal-health/recruitment> (accessed 8 February 2015).
- 89 Adam Spencer, Todd Young, Sarah Williams, Doris Yan, and Susan Horsfall, "Survey on Aboriginal Issues within Canadian Medical Programmes," *Medical Education* 39, no. 11 (2005): 1101–9.
- 90 LCME, Mock Accreditation Survey, 4 December 2007.
- 91 CACMS Self Study Report (10 December 2007), 9.
- 92 On the so-called "quota system" at Canadian medical schools, see, for example, Elena Curtis, Erena Wikaire, Kanewa Stokes, and Papaarangi Reid, "Addressing Indigenous Health Workforce Inequities: A Literature Review Exploring 'Best' Practice for Recruitment into Tertiary Health Programmes," *International Journal for Equity in Health* 11, no. 13 (2012): 1–15.
- 93 Accreditation Statement, Policy for the Recruitment of Applicants of Aboriginal Background, 2008.
- 94 CACMS Self Study Report (10 December 2007), 10.
- 95 Ibid., 10.
- 96 Accreditation Statement, Policy for the Recruitment of Applicants of Aboriginal Background, 2008.
- 97 CACMS Self Study Report (10 December 2007), 28.
- 98 Ibid., 8.
- 99 O'Brien Institute for Public Health, "History," <https://obrieniph.ucalgary.ca/about-institute/history> (accessed 8 February 2015).
- 100 Ibid.
- 101 Ibid.

- 102 O'Brien Institute for Public Health, *Calgary Institute for Population & Public Health: A Strategic Plan* (March 2009), <http://iph.ucalgary.ca/system/files/StrategicPlan-2009March20.pdf> (accessed 24 February 2019).
- 103 International Scientific Advisory Group, *Report of the International Scientific Advisory Group of the Institute for Public Health, September 30th to October 1st 2013* (Calgary: O'Brien Institute for Public Health, 2013), 1.
- 104 See for comparison Wilfreda E. Thurston, Andrea Soo, and David Turner, "What is the Difference between an Aboriginal Person who is Homeless and a Non-Aboriginal Person who is Homeless?" *Pimatisiwin: A Journal of Indigenous and Aboriginal Community Health* 11, no. 2 (2013): 283–92.
- 105 Dr. Wilfreda E. Thurston, email message to Susan Kutz, Sylvia Checkley, and David Turner, 10 September 2010.
- 106 Now the Cumming School of Medicine. See Sylvain Coderre, Wayne Woloschuk, Janet Tworek, Pamela Veale, Joann McIlwrick, and Bruce J. Wright, "University of Calgary Cumming School of Medicine," *Academic Medicine* 85, no. 9 (2010): S615–17.
- 107 Now called the O'Brien Institute for Public Health. See O'Brien Institute for Public Health, "History," <https://obrieniph.ucalgary.ca/about-institute/history> (accessed 8 February 2015).
- 108 Calgary Urban Aboriginal Initiative, *Removing Barriers: A Listening Circle Renewal Report—June 2009* (Calgary: City of Calgary, 2010), 3.
- 109 Jamie Day, email message to Dr. Wilfreda E. Thurston, 12 February 2015.
- 110 Examples of presentations include "Alberta Health Services Aboriginal Health Program" by the director, Val Austen-Wiebe (31 May 2013) and "Building Aboriginal Health Research with Community in Mind—Lessons Learned from the Development of the Well Living House Action Research Centre for Indigenous Infant, Child and Family Wellbeing," by Dr. Janet Smylie, University of Toronto, (20 September 2013).
- 111 University of Calgary Faculty of Medicine, "Aboriginal Health Program—About," <http://www.ucalgary.ca/ahp/about> (accessed 8 February 2015).
- 112 GRAPH research group, "information brochure" (Calgary: O'Brien Institute for Public Health, 2012).
- 113 Bachelor of Health Sciences (BHSc), *Program Proposal Integrated Pipeline Program for Applicants from Aboriginal Backgrounds* (2013), 1. Available from Cumming School of Medicine.
- 114 Alberta First Nations Information Governance Centre, "Home," <http://www.afnigc.ca/main/index.php?id=home&content=home> (accessed 12 February 2015).
- 115 First Nations Information Governance Centre, "Home," <http://www.fnigc.ca/ocap.html> (accessed 12 February 2015).
- 116 Traditional knowledge is often sacred knowledge that only Elders recognized as such in the community can decide to release outside of the community. See Kelm, *Colonizing Bodies*, 153–72.
- 117 T. Diane Campbell, "A Clash of Paradigms? Western and Indigenous Views on Health Research Involving Aboriginal Peoples," *Nurse Research* 21, no. 6 (2014): 39–43.

- 118 GRAPH Community Advisory Council, Meeting Minutes, 10 March 2014.
- 119 Wilfreda E. Thurston and David Turner, “A Research Partnership Addressing Aboriginal Homelessness” (presentation to the Department of Community Health Sciences Seminar, University of Calgary, 16 April 2010).
- 120 Campus Alberta was created in 2002 to “encourage further collaboration between the province’s 26 publicly funded post-secondary institutions.” See Ministry of Advanced Education, “Campus Alberta,” <http://eae.alberta.ca/post-secondary/campusalberta.aspx> (accessed 20 November 2014).
- 121 Dr. John A. Cunningham, director, “Annual Report of the Director of Stoney Health Centre” (1977) University of Calgary Archives – UARC 2000.042 file 11.04.
- 122 This was the only mention of the term “Aboriginal” in the 2012 Academic Plan and a search of the 2012 Strategic Research Plan for the University of Calgary located no mention of the terms “Aboriginal” or “Indigenous.”
- 123 See for comparison Genneviève Jessiman-Perreault and Lynn McIntyre, “The Household Food Insecurity Gradient and Potential Reductions in Adverse Population Mental Health Outcomes in Canadian Adults,” *Social Science and Medicine—Population Health* 31, no. 3 (2017): 464–72.



## The Transformation of the Concept of Nursing

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In a lecture given in 1984, nursing historian Joyce Prince stated that Florence Nightingale (1820–1910), who had founded the field of nursing in mid-nineteenth-century England, had planned to establish

a normal school for nurses with a view to the ultimate elevation of that class to the position of a profession . . . and scientific instruction with a view to improve practical results in nursing by lectures.<sup>1</sup>

Yet Prince also noted that concern was expressed by contemporary observers, in that it was

very desirable to direct the reading of the intelligent probationers but only to the extent which will enable them to understand, and be interested in their work without inducing them to think that they might attempt doctor's work. . . . [We should] avoid any charge that we are trying to make medical women.<sup>2</sup>

Clearly, things have changed in nursing education over the past 160 years, and, more locally, especially since the founding of the University

of Calgary Faculty of Nursing in 1969. These changes have resulted in a transformation of the concept of nursing that has contributed to improving the health of Albertans. In the following chapter, I will address developments in nursing education in the Faculty of Nursing over the past five decades within the context of health and health care in Alberta.

When Dr. Shirley R. Good (1930–2018) (soon to be director of the School of Nursing) arrived in Calgary on 1 July 1969, her plan was to create

a degree program [that] would prepare nurses for community practice, based on a social service model, emphasizing prevention, treatment, and restoration rather than preparing nurses for the limited hospital setting with its roots in the medical model.<sup>3</sup>

In an interview in the fall of 1970, on the first day of classes at the School of Nursing, Good said:

The program will be people-oriented [and is] developed to prepare students for the changing role they will be required to play in providing care for the future. . . . What we are hoping to do is to turn out graduates who can see the whole nursing picture and are equipped to care for the patient's total health needs physically, mentally and emotionally.<sup>4</sup>

As nursing historian Geertje Boschma noted, “in some ways, Good was ahead of her time with her views on a stronger community focus for health professionals.”<sup>5</sup> However, even with the support of the federal minister of health and welfare Marc Lalonde (b. 1929), in his 1974 report “New Perspectives on the Health of Canadians,” “daily pressures to establish the program precluded the immediate implementation of these ideas.”<sup>6</sup> Boschma further noted that every development in the new program required careful negotiation because the agencies that could provide clinical placements were not accustomed to the new type of academic nursing students.

Indeed, “they felt [the] faculty and university’s nursing students should adapt to the same shift work and work culture as hospital students.”<sup>7</sup> In 1972, the university administrators “suggested an evaluation of the

program, two of which were favorable” and the third report by educator Muriel Uprichard (1911–95), the director of the School of Nursing at the University of British Columbia, “communicated concerns over the operation of the program as well as over the leadership abilities of the Director.”<sup>8</sup> Following this third report, Shirley Good was asked by the president to submit her resignation, and this resulted in a disruption of the program.<sup>9</sup>

In spite of this disruption, in May of 1974, the first class of baccalaureate-prepared students graduated. They shared vivid memories of

a great education, rich in diversity . . . [noting that] faculty were on the cutting edge of teaching us critical thinking before it was trendy to call it that. . . . The faculty’s vision of nursing leadership inspired many students to achieve advanced and effective careers in hospital and community nursing.<sup>10</sup>

## The Creation of the University of Calgary Faculty of Nursing

Marguerite Schumacher (1920–2013) was appointed director of the school in 1974 and dean when the School of Nursing was transformed into the Faculty of Nursing in 1975.<sup>11</sup> Schumacher “pioneered the theory-based nursing, envisioning the nurse-patient relationship and nursing communication as the core of nursing studies and practice.”<sup>12</sup> The 1970s represented a time of unrest among nurses across the province due to their discontent over pay, the demanding clinical environment, and the diversifying nursing workforce.<sup>13</sup> Indeed, the relationship between diploma-prepared nurses and those prepared at the baccalaureate level remained controversial. In January 1975, the provincial government agreed to an in-depth review of nursing education; the resulting task force was made up of representatives from various nursing groups, physicians, and hospital administrators. *The Alberta Task Force on Nursing Education Report* was released in September 1975, and was influential across Canada. It underscored the need for the planning of “professional nursing education . . . so that non-university programs articulate with university based programs in accordance with the principle of a continuum of nursing education.”<sup>14</sup> At this time, the suggestion that a baccalaureate degree be considered the minimum

requirement for entry into nursing practice by the year 2000 surfaced in Alberta, and in 1982 this was fully supported by the Canadian Nurses Association (CNA). However, in 1977, “the provincial government recognized baccalaureate education as being desirable for an increased number of practicing nurses but it did not agree with making the baccalaureate degree a mandatory requirement for practice.”<sup>15</sup>

In spite of the government’s response, the three groups of educators (college, hospital, university programs) united in 1977, and in 1983 renamed their group the Alberta Nursing Educators and Administrators.<sup>16</sup> The Alberta Task Force on Nursing Education’s report had pointed out the lack of adequately prepared nurses for leadership positions, and at the same time Minister Lalonde’s 1974 report “emphasized the importance of health, lifestyle, environmental, and health care education in health care delivery.”<sup>17</sup> That report also noted that “health is not achievable from health care services alone but from the interaction of health services with human biology, lifestyle, and the environment in which we live.”<sup>18</sup> In other words, Lalonde suggested that “health is tied to overall conditions of living, particularly the environment and the behaviours chosen by people.” Individuals should therefore begin to take responsibility for their health. According to public health researchers Ardene Robinson Vollman, Elizabeth T. Anderson, and Judith McFarlane, the report did have obvious limitations, but it stimulated thinking about how best to orient health services in a new direction. The report also represented a “change in the focus of health and disease.”<sup>19</sup>

The climate was therefore ripe for a shift in nursing education to “include a stronger emphasis on health maintenance and prevention of disease.”<sup>20</sup> In 1977, administrators at the University of Calgary asked the Faculty of Nursing for “more elaborate statements of the unit’s role, objectives and specific activities planned for the next several years.”<sup>21</sup> In the resulting plan, the faculty noted that “the education of competent professional nurses for nursing practice . . . had its core in understanding the health needs of society and [the promotion of] the individuals’ resources so that they may adapt to the changes they constantly experienced.”<sup>22</sup> The plan included the idea of developing a health centre or “health promotion clinic within the Faculty for autonomous nursing practice of health promotion.”<sup>23</sup> The creation of this clinic would be in keeping with the World Health Organization’s 1978 Declaration of Alma Ata, in which it was agreed that

“people themselves (not the politicians or the experts) should shape the world in which we live”:

[This declaration] became the philosophy of community action for health. Its emphasis on social justice, equity, public participation, appropriate technology, and intersectorial collaboration focused action on the needs of the population and the root causes of ill health, challenging the system to move beyond the traditional biomedical model (disease) to a framework that promoted health . . . [and that] called for health providers to work *with* people to assist them in making decisions about their health and how to meet health challenges in ways that are affordable, acceptable, and sustainable in the long term.<sup>24</sup>

Nursing historian Boschma further noted that

In the seventies, Alberta was the wealthiest province in the country, resulting from enormous oil revenues. . . . [The newly elected] Progressive Conservative government adapted to rapid social changes and swiftly increased public spending. . . . Educational and Health care institutions greatly expanded their services . . . because of increased government spending.<sup>25</sup>

In 1979, Margaret Scott-Wright (1923–2008)—the first professor of nursing in the United Kingdom (at the University of Edinburgh) and first chair of nursing studies in Europe—was appointed as dean with a view to establishing a graduate program in nursing. Following the necessary approvals, the first eight master’s students entered the course-based program in September 1980.<sup>26</sup>

However, during the 1980s, on a national level, the focus of health-care delivery was on primary health care (PHC), which ensured “public participation at all levels, social justice and equity and a system that balances care, cure, and rehabilitation.”<sup>27</sup> Then, in 1986, the Canadian government published a discussion paper entitled *A Framework for Health Promotion*,<sup>28</sup> later referred to as “The Epp Framework,” named after then federal minister of health and welfare Jake Epp (b. 1939). In his report, Epp

defined health as a part of everyday living, an essential dimension of the quality of our lives. In this context, quality of life “implies the opportunity to make choices and gain satisfaction from living.” Health is a state that individuals and communities alike strive to achieve, maintain or regain, and is influenced by circumstances, beliefs, culture, and socioeconomic and physical environments. This document reaffirmed the WHO definition of health promotion as “the process of enabling people to increase control over, and to improve, their health.”<sup>29</sup>

During the mid-1980s, the faculty’s philosophy was driven by “its obligation to prepare competent nurses for the provision of innovative and effective responses to [the] changing health care needs of people.”<sup>30</sup> Faculty members believed that in the future their emphasis would focus on client independence, promotion and the maintenance and restoration of health, the alleviation of distress, and respectful dying.<sup>31</sup> While baccalaureate education considered the “broad spectrum of nursing practice,” graduate education had to determine how to accommodate the many specialties in nursing that included “psychiatry, oncology, critical care, maternal and child health or primary care.”<sup>32</sup> Gradually community health care (population focus), adult health, maternal and child care, and family nursing were added.<sup>33</sup> In support of these endeavours, a Family Nursing Unit was established within the University of Calgary Faculty of Nursing, at no charge, to assist families in dealing with serious illness.<sup>34</sup> By the early 1990s, there was an increased emphasis on health promotion, and in order to prepare nurses for PHC, a population-health focus was implemented in the undergraduate curriculum, while a separate focus in community health was added to the graduate program.<sup>35</sup>

## Implications of the Rainbow Report in the Province of Alberta

In 1985, Dr. Joy Durfée Calkin (b. 1938) was appointed dean with the expectation that she would strengthen “the public face of nursing for the University of Calgary with a view to developing” a stronger public presence in terms of research and clinical expertise in the larger health-care community as well as the academic environment.<sup>36</sup> The political and health-care context in which Calkin now operated was now drastically different

than the economic boom of the previous decade. New strategies to reduce spending in health care and education marked provincial politics, and this resulted in budget cuts and layoffs that included nurses.<sup>37</sup> To address this situation, in 1988 Premier Donald (“Don”) Ross Getty (1933–2016) established the Premier’s Commission on Future Health Care for Albertans; Calkin joined the commission in January of that year.<sup>38</sup> Following numerous town hall meetings held across the province, the commission made several recommendations as part of what was known as the Rainbow Report. In particular, the report noted that “the health care system should focus on the ideas of health promotion and prevention, including the improvement of people’s understanding about the impacts of lifestyle behavior.”<sup>39</sup>

The commission had a vision that focused on “healthy people living in a healthy Alberta,”<sup>40</sup> and to attain this vision, the province would have free individual choice; would be accountable for the well-being of the community with assistance from policy and legislation; would have respect for autonomy and dignity; would be skilled at developing health communities; would partner with caregivers and health promotion; and ensure that illness prevention be taught and practised in the community.<sup>41</sup> Clearly, this is not an exhaustive list, but these ideas did reflect Albertans’ changing view of health held by Albertans.

In order to address these recommendations and to prepare nurses to meet the demands of nursing care in the next century, Calkin aimed to bring an integrative approach to nursing education. To that end she established the Joint Venture Initiative, which was

a collaborative model in which the three parties involved in basic nursing education in Calgary, Mount Royal College, the Foothills hospital and the University of Calgary would be equal partners.<sup>42</sup>

This eventually became the Calgary Conjoint Nursing Program, implemented in 1993. The earlier emphasis on PHC now led to a community-action initiative in the faculty in which undergraduate nursing students worked in CARTs (community action research teams) to construct community action plans that would “empower communities in assuming responsibility for solving their health problems.”<sup>43</sup> This approach to PHC

has allowed faculty members to make a number of community contributions, such as the Children's Cottage (a twenty-four-hour crisis nursery and parental respite centre founded in 1986), the organization of a recreational day program for elderly persons with dementia, and a variety of projects on an international level.<sup>44</sup> Throughout the late 1980s both faculty and students were "committed to instilling and cultivating interest, ability and knowledge to contribute to the advancement of people's health."<sup>45</sup>

During the 1990s, the health-care context, both provincially and nationally, was changing, and Canadians wanted the health-care system to focus on keeping people well rather than in intensive-care hospital beds due to the rising cost of health care. In 1994, the Federal/Provincial Advisory Committee on Population Health published a document entitled *Strategies for Population Health Investing in the Health of Canadians*, which initiated a discussion around the "determinants of health" in order to answer the question, "Why are some people healthy and others not?"<sup>46</sup> The list has now expanded to twelve determinants: income; social status; social support networks; education; employment and working conditions; social environments; physical environments; personal health practices; coping skills; healthy child development; culture, gender, biology and genetic endowment; and health services.<sup>47</sup>

Meanwhile, starting in 1993 the new premier of Alberta, Ralph Klein, drastically reduced health-care funding through hospital closures and nursing layoffs. Alberta nurses were unhappy with these changes, as between 1993 and 1996 the rapid cuts to health care resulted in

long waiting lists and crowded emergency rooms. Many of the province's highly trained specialists left Alberta, including neurosurgeons, obstetricians, pediatricians, and psychiatrists. Rural areas could not recruit doctors, waiting lists grew longer, and staff faced unprecedented levels of stress, equipment wore out, and thousands of jobs had been lost.<sup>48</sup>

Dr. Ralph Sutherland noted that, in 1994, provincial governments were changing how they viewed their role in health care. They were abandoning the medical model and emphasizing community care and health promotion.<sup>49</sup> In 1995, Klein decided to put further health-care cuts on hold and nursing academic Barbara Shellian, then the president of the Alberta



Association of Registered Nurses (now the College and Association of Registered Nurses), commented that reform to the health-care system was needed.<sup>50</sup> Although Shellian applauded Klein's decision to halt further cuts, she also observed that "we need a system that puts more focus on people's health and wellness, and fully utilizes all health care providers."<sup>51</sup> As further noted by Ralph Sutherland in 1996,

Previous levels of spending on the social programs to which Canadians have become accustomed, including our publicly financed health care, can no longer be afforded. The federal government is reducing transfer payments to the provinces. Provinces have capped spending on health care and have capped spending in all of the major sectors within health care.<sup>52</sup>

The 1990s represented a time of confusion and disappointment at all levels of health-care provision, but moving away from the medical model reflected the shift in the emphasis from illness to wellness.

As a result, Janet Storch, who was appointed dean on 1 July 1990, faced pressing financial and economic constraints, as did the University of Calgary as a whole, and this situation lasted until the end of the 1996 fiscal year.<sup>53</sup> Storch resigned on 1 May 1995, and Carol Rogers assumed the position of acting dean.<sup>54</sup> In 1996, the faculty updated its philosophy with a view to developing a caring curriculum that demonstrated an understanding of human health as constituted within the lived experience of a person.<sup>55</sup> The U of C Faculty of Nursing's philosophy also included the concept of population health, which described "health as an asset that is a resource for daily living, not simply the absence of disease [and] concerns itself with the living and working environment that affect people making healthy choices, and the services that promote and maintain health."<sup>56</sup> Thus, population health, together with caring, came to represent an integrative, holistic approach to health rather than a reductionist and objectifying one. The subjective perspective of the patient would now be considered in health-care decisions.<sup>57</sup> Also, during the 1990s, a number of research units were established; these included, among others, the Health and Healing Centre, the Continuing and Chronic Care Group, and the

Community Health Nursing Unit (which aimed “to promote excellence in education of groups, aggregates, and communities”).<sup>58</sup>

## On the Relationship between Nursing Practice and Technology

The 1990s also represented a time of unprecedented development in the field of technology,<sup>59</sup> which stimulated faculty use of computer technology in research and teaching. Earlier in this decade, Dean Storch appointed Bohdan Bilan, a PhD candidate in education, as director of the computer laboratory.<sup>60</sup> Bilan then wrote a column in the *Faculty of Nursing Newsletter*, entitled “Cyberactivity in Nursing: Changing Possibilities,” in which he noted that there was “a desire to see that nursing expands its role in computer mediated learning and patient care.”<sup>61</sup> He further described the role of the nurse in a changing information systems environment as follows:

Nurses are in an ideal position to guide the application of science at the bedside given the current reorganization of health care systems. The nursing profession must embrace all new computer technologies to remain relevant. We must do this so that they can assist patients and health organizations in adapting and adopting change.<sup>62</sup>

At the same time, there was a health-care crisis across Canada. Sharon Doyle Driedger noted in an article for *Maclean's* magazine that

Nurses just beginning their careers face enormous changes. Medical technology, health reform, research developments, the Internet, preventive and alternative medicine, a more informed public, feminism, increased education [are] just some of the factors transforming the profession's traditional roles.<sup>63</sup>

Helen Mussallem (former executive director of the Canadian Nurses Association, or CNA) predicted that hospital nurses would become fewer in number, more highly specialized, and would be offering services in neighbourhood clinics ranging from simple diagnostic testing, to

advanced medical testing and health education. She saw “nurses as the leaders of health services in the community.”<sup>64</sup> Educational preparation would now need to address patient advocacy, independent thought, and critical decision-making. The new graduate would be prepared to take an active role in the formation of health-care policy.<sup>65</sup>

During the past century, community health nursing had shifted toward the goals of PHC. Indeed, the goals of all health-care workers developed to include:

The prevention of disease, promotion of health, and rehabilitation of the sick and disabled . . . specific aims [that] encompass[ed] reduction in risk factors, strengthening of self-care abilities, and maintenance or improvement in the quality of life.<sup>66</sup>

Furthermore, as the twentieth century came to a close, many nurses at various levels were prepared to work as public health nurses, thus demonstrating concern about the environment to which patients were returning.<sup>67</sup> Also, by integrating PHC into the delivery of health care, the role of the nurse expanded, which resulted in the sensible use of health-care professionals and new patterns of health-care delivery being considered.<sup>68</sup> PHC projects emerged across Canada, with the support of many professional nursing associations. These associations developed educational workshops addressing PHC in an attempt to demonstrate that nursing education across Canada was leaning towards the inclusion of public health-care content.<sup>69</sup> At the University of Calgary and other Canadian universities this content was visibly increased over time. For example, courses were offered within graduate programs with a public health major or option.<sup>70</sup>

Health-care provision and nursing education now needed to address the rapid changes in science and technology that were occurring in the twenty-first century. This required nurses to have a higher level of scholarship and education in increasing areas of specialized clinical practice.<sup>71</sup> By 2000, the U of C's Faculty of Nursing was therefore planning ahead. It realized that working with patients and families was essential for training nurses to grasp the clinical situation, gain a situated understanding, and to develop the ability to *use* medical and social knowledge forms.<sup>72</sup> Patricia

Benner, a senior scholar with the Carnegie Foundation for the Advancement of Teaching in Princeton, New Jersey, is a noted nurse educator and author of *From Novice to Expert: Excellence and Power in Nursing Practice*.<sup>73</sup> She described nursing practice as the “in-between social spaces of medical diagnosis and treatment and the patients’ lived experience of illness or prevention of illness in their particular life, family, and community.”<sup>74</sup> Nursing education had gradually changed over the twentieth century, shifting from the apprenticeship model of the early 1970s to learning that, according to Benner, involved

a range of interactive learning required for any professional . . . [that] included instantiating, articulating, and making visible and accessible key aspects of competent and expert performance . . . apprenticing oneself to a health care team, a community of practice, and even to patients and families [which would be] essential for learning to grasp the nature of the clinical situation, gaining situated understanding, and skill.<sup>75</sup>

Nursing education would now prepare nurses to act as moral agents, whether at the bedside, in the home, or in a community:

In situations that are undetermined, contingent, and changing over time . . . [the student is taught] to *be* a nurse in terms of *using* evidence-based knowledge, clinical judgment, and skilled knowledge.<sup>76</sup>

As a moral agent, the nurse’s actions would be based on self-embodied principles and knowledge to facilitate a positive outcome for the patient, the family, and society.<sup>77</sup> Moral agency in nursing involves “the action demonstrated by nurses who approach ethical dilemmas in a manner consistent with the caring component of nursing and with a focus on the patient.”<sup>78</sup> The active practice of nursing therefore came to the forefront of nursing education.

Between 2002 and 2004, leadership in the Faculty of Nursing fluctuated between two acting deans, Florence Myrick and Marlene Reimer, until Michael Clinton was appointed dean on 1 July 2004.<sup>79</sup> The university

leadership also changed, and the new president, psychologist Dr. Harvey Weingarten, identified four distinct priority areas of study as

advancing health and wellness; leading innovation in energy and the environment; creating technologies and managing information for the knowledge society; and understanding human behaviour, institutions and cultures.<sup>80</sup>

Weingarten's goal was to propel the University of Calgary to world-class recognition.<sup>81</sup> The U of C Faculty of Nursing, for its part, supported this goal by carving out

a niche in two designated pillars under the broader priority area of advancing health and wellness, including health, wellness and human performance as well as social dimensions and determinants of health.<sup>82</sup>

In order to respond to the demands on the health-care system over the next four years, nursing education would focus on health promotion, illness prevention, and illness care.<sup>83</sup> The faculty was committed to furthering nursing practice through innovative strategies and partnerships with the community it served. Indeed, as the faculty faced the twenty-first century, it was prepared to take on new challenges of caring for patients and promoting health in the community.<sup>84</sup> Benner noted that “students can become powerful leaders ready to influence the larger political and public arenas for improved health care systems.”<sup>85</sup>

Therefore, the breadth of the nursing role was becoming increasingly far-reaching, systems-based, and more holistic.<sup>86</sup> The U of C Faculty of Nursing took these notions into consideration to ensure that nurses graduated with this vision of their future practice. The professional concept of nursing was now focusing on the social determinants of health within the Canadian context. The Canadian Nurses Association published a “CNA Backgrounder” that defined the social determinants as

the economic and social conditions that influence the health of individuals, communities and jurisdictions as a whole. Social determinants of health determine whether individuals

stay healthy or become ill (a narrow definition of health). Social determinants of health also determine the extent to which a person possesses the physical, social and personal resources to identify and achieve personal aspirations, satisfy needs and cope with the environment (a broader definition of health). Social determinants of health are about the quantity and quality of a variety of resources that a society makes available.<sup>87</sup>

In order to address this broader definition of health, nurses would now be expected to “ask the right questions during their assessment process” to ensure that Canadians achieved the health goals set by their government.<sup>88</sup> This represents a distinct shift on the part of the can, from the previous focus on sickness care to a new focus on “health care.”<sup>89</sup> Nursing practice, at the individual level, would now include considerations of the social determinants of health and would result in a reorientation of the health-care system while advocating for healthy public policies.<sup>90</sup> The CNA also provided nurses with strategies to assist them in achieving these new goals.<sup>91</sup>

Another strategy to achieve health for all was described by Michael Villeneuve and Jane MacDonald in their 2006 publication *Towards 2020: Visions for Nursing*. This publication identified self-care as the “largest contributor to the creation and maintenance of health.”<sup>92</sup> Villeneuve and MacDonald also predicted that by 2020, nurses would

develop and implement broad programs of health promotion and illness prevention in schools, workplaces, and communities, and [be] a strong, visible presence . . . focusing instead on health, the needs of patients and communities, and [providing] sound evidence to guide policy and practice.<sup>93</sup>

Furthermore, nursing practice would take place in the socio-environmental and political-cultural context of the individual.<sup>94</sup>

## Reconnecting Bedside with Community in Nursing in Calgary

To that end, in 2007, the U of C Faculty of Nursing sought to ensure that nursing education in Calgary was aimed at “demonstrat[ing] a tangible return [to] the community.”<sup>95</sup> Under the leadership of Dean Dianne Tapp, who assumed that position in 2007, the faculty identified its new internal vision as providing “nursing leadership in health and wellness through a culture of collaborative inquiry, learning, and service.”<sup>96</sup> At that time the mission was to excel in research and educational initiatives that contribute to health and wellness, the education of nurses who are renowned for excellence in practice, [and the] preparation of nurse leaders who contribute to development of [the] emerging health care system.<sup>97</sup> Support for this program was provided by Senior Vice-President Janet Umphrey, of what was then called the Calgary Health Region.<sup>98</sup>

In 2007, in spite of the support for the previous program, the Faculty of Nursing revisited the educational preparation it provided for their students. In a draft document describing the historical context of this education, it was noted that

Nursing as a discipline has a unique place, work, goals, roles, and contributions to a society in promoting, maintaining, supporting, and restoring health, bearing witness, alleviating distress, and achieving optimum quality of life for the members of society.<sup>99</sup>

This document examined the previous program to ensure its relevancy “moving into the second decade of this millennium”<sup>100</sup> A follow-up survey of students who had graduated in 2005 that was completed in 2006, identified areas in which the graduates felt least prepared, such as policy development, working with minority populations, and some management skills.<sup>101</sup> In order to address these skills and the fluctuating environment within which nurses were providing care, graduates of the Faculty of Nursing would now be prepared to:

address the Health needs of people with decreasing natural resources and changing ecological environments . . . [have]

opportunities . . . to improve quality of life issues and promote access to health care . . . [and] address health challenges associated with the rapid changes in the socio-political, economic, and physical environments within Calgary and its surrounding environments. [The complex and varied] contexts within which nursing takes place . . . require creative and effective leadership from nurses that take into account their changing ecological, cultural, political, and psychosocial aspects.<sup>102</sup>

There would now be an emphasis on contextual and holistic approaches in the nursing education program.

In tandem with this planning, the U of C Faculty of Nursing revisited its “Bachelor of Nursing Program Philosophy” in 2009 to ensure that the philosophy, goals, and objectives of the new program were in keeping with this new holistic approach to the practice of nursing. There was also a recognition of the need to be cognizant of the goals of the University of Calgary and the nursing community in Alberta. In this document, the faculty further noted that the educational preparation of nurses was “mindful of the larger obligation to promote societal health and wellness,” and therefore, the faculty was eager to educate nurses prepared to respond effectively and with innovation to advances in health.<sup>103</sup> In so doing, it was understood that all people have the right to manage and direct their own health and health challenges.<sup>104</sup> Furthermore, nursing practice cares for all people as individuals, families, groups, communities, and populations within the larger society.<sup>105</sup> These ideas represent a shift of responsibility from the health-care provider to the patient in which the patient would be more involved in his or her health-care decisions. In keeping with this empowerment philosophy, the contributing authors also noted that

Health is dependent on a multiplicity of factors and may have many meanings for the client. The capacity of the client to optimize health and well-being is influenced by complex organizational, economic, socio-political, ecological and environmental factors. The field of nursing accepts health as a human right. . . . It is incumbent on the nurse to develop services, resources and environments which influence the health of individuals, communities and populations.<sup>106</sup>



In addition, it was stated that the Faculty of Nursing “believes that nurses have responsibility for research, policy development, health services design, and [a] practice approach that responds to current and future realities.”<sup>107</sup>

In creating this new program of education, the Faculty of Nursing recognized “the increasing and profound influence of the environment on the health of clients” and believed that

The present and future health needs of people with decreasing natural resources and changing ecological environments provide unique opportunities and challenges for nurses to improve quality of life issues and promote access to health care.<sup>108</sup>

To that end, the principles that guided the program involved all contexts in which nursing was practiced, as well as an “understanding of health and health care systems at the local, national, and global level.”<sup>109</sup> A strong focus was placed on “incorporating basic and applied sciences, knowledge of key population health issues and determinants of health.”<sup>110</sup> Population health involves a consideration and a maximizing of the health of Canadians through the entire range of individual and collective factors and conditions shown to be correlated with health.<sup>111</sup> When approaching clients, graduating nurses would now demonstrate

strong critical thinking, evidence-based practice orientation, and interprofessional practice skills. They [would] have solid foundation in population health and social determinants of health, family and patient-centered care, and a readiness to begin practice in a wide range of settings as lifelong learners.<sup>112</sup>

This represents a much broader and more holistic approach to patients and clients when compared with what was held to be appropriate educational preparation for the previous nursing students, and, in turn, would clearly benefit the health of Albertans.

The goal of the new educational program was to ensure that students were prepared to meet the needs of twenty-first-century health care “across different practice environments, where nurses work collaboratively with patients, clients and families as well as other professionals.”<sup>113</sup>

Furthermore, new graduates were prepared to deal with complexity and would cultivate skills of clinical judgment that would enable them to be flexible and sensitive in the dynamic contexts of health-care delivery and health promotion.

Fundamental to the preparation of nurses was a strong focus on incorporating knowledge of key population health issues and determinants of health experiences that would benefit the health of the community and quality of patient care with an emphasis on an understanding of health and health-care systems.<sup>114</sup> These graduates would also understand the impact of contextual factors (political, economic, social, ecological, and global) and diversity on health and health transitions.<sup>115</sup> U of C Faculty of Nursing graduates would demonstrate a broad knowledge of health promotion and illness prevention among all populations; global knowledge of health-care systems; competent nursing care of all populations across the lifespan based on experience working with the entire health-care team; the promotion of healthy environments; and leadership skills.<sup>116</sup> These goals were entirely in keeping with both the faculty's 2014 vision statement, which concerned "advancing the practice of nursing and promoting human health through research and learning," and its mission statement, which was as follows:

Our graduates are prepared for leadership through research and nursing practice in varied roles and settings, in local and global contexts, and with diverse populations through integration of nursing education and research. Infused with curiosity and driven by passionate determination. We embrace opportunities for innovation and transform health systems for the future.<sup>117</sup>

In 1996, Ralph Sutherland published a book asking a question in its title--*Will Nurses Call the Shots?* He was concerned primarily with the delivery of health care twenty years into the future. He noted that:

The functions of an introductory education are to provide a reasonable initial degree of user safety (through the presence of an acceptable initial degree of provider skill and judgment),

to help new graduates understand and identify with their chosen work and to prepare graduates for life-long learning.<sup>118</sup>

This concept is emphasized throughout the nursing program, and because of this emphasis graduates will be prepared to address the changing health-care needs in a transformed socio-political climate. Therefore, by approaching the client with a broader concept of nursing, the client benefits from the assessment of his or her situation through the multiple lenses of their family, physical and ecological environment, community, and population. This approach ensures the delivery of health care on an individual basis that addresses the client's specific health-care needs.<sup>119</sup> This will contribute to a healthier Albertan in a healthier Alberta, as is demonstrated in the following examples.

On 21 June 2013, Calgary and its surrounding communities along the Bow and Elbow Rivers experienced a disastrous flood that resulted in 100,000 people being forced to leave their homes. This disaster provided nursing students with an opportunity to apply their nursing education to a situation that would require them to draw on their recent learning from nursing at a community as well as population level. Their community practicum placement also focused on transitions across the lifespan and inter-professional practice. Once the University of Calgary had prepared the student residences, 450 evacuees arrived and Vice-Provost (Student Experience) Susan Barker reached out to the Faculties of Nursing, Social Work, and Medicine requesting support for the evacuees.<sup>120</sup> Initially there were 17 nursing student volunteers and 5 Faculty of Nursing members doing wellness checks on the evacuees to identify overall needs. The next day the number of student volunteers grew to 24, with 8 Faculty of Nursing members. Their primary task was to assess needs, develop resource lists, and determine what basic supplies could be obtained for the evacuees. As more and more allied-health volunteers arrived, they looked to the Faculty of Nursing members and students for direction based on their initial assessments.<sup>121</sup> As noted by Gale Rutherford (a faculty member) and her colleagues:

The initial process of conducting the needs assessment allowed the students and faculty to build trusting relationships with the evacuated residents, many of whom were experiencing

distress and emotional uncertainty. Using relational communication skills, the nursing students listened to the traumatic stories of the evacuee's experiences. Many of these stories told of devastation and the uncertainty about the status of homes and previous accommodations.<sup>122</sup>

The evacuees represented a diverse population and included families, elderly persons, people with addictions, those living with mental illnesses, and people who were homeless. Informal feedback from the evacuees, other professionals, and volunteers was positive:

Indeed, the nursing student teams showed leadership in conducting the initial assessment and connecting with people to cultivate a sense of trust, belongingness, and hope. They were courageous in using their abilities and skills; they were able to provide a compassionate, honest, and open approach to support this vulnerable group of people during a crisis.<sup>123</sup>

The Calgary flood created a traumatic situation that provided opportunities for Calgarians to come together to support those affected. It also provided an opportunity for nursing students to learn first-hand the importance and relevance of nursing in a community setting, where all of their knowledge and skills were used to their full extent.<sup>124</sup>

On 4 May 2016, the Alberta government declared a provincial state of emergency for Fort McMurray due to a wildfire that had begun three days earlier and was forcing the largest wildfire evacuation in the history of the province.<sup>125</sup> At the time, it was claimed that "we have successfully evacuated 88,000 people with no reports of injury or casualties so far."<sup>126</sup> The University of Calgary immediately offered full support to the Calgary Emergency Management Agency as well as housing and meals in student residences, shelter and care for animals and pets, a support team from the Faculties of Medicine, Social Work, and Nursing, and volunteers.<sup>127</sup> By 10 May 2016, more than 1,200 displaced residents were on the U of C campus; support was now increased to include staff and students from the Faculty of Nursing and members of the Student Medical Team to work alongside the Departments of Veterinary Medicine, Social Work, Kinesiology, and Medicine.<sup>128</sup> Once evacuees arrived on campus, nursing students were

given the opportunity to witness and participate on multidisciplinary teams as part of their course work during the spring and summer session. As their instructor noted in the U of C's online newsletter *UToday*:

The nursing students have started going door to door during the day to meet with and offer further support to evacuees. The students together with professionals from Social Work, Psychology, and Medicine are available to assess the current needs of evacuees. They are able to provide basic mental health first aid and refer people to other sources if necessary.<sup>129</sup>

Indeed, Dave Patterson, the instructor involved in this venture, reported that his students provided support to 1,400 displaced residents from Fort McMurray staying on campus. Students from the Faculty of Social Work and a number of nursing instructors joined the effort as well. They were given training in psychological first aid and then sent out in teams to assess the needs of the evacuees. During the time spent working with the displaced people, the nursing-led teams knocked on over 1,600 doors, performed 139 needs assessments, and referred approximately 50 evacuees to other resources and services. The students completed this while continuing to provide psychological first aid to the evacuees. As an added note, on Mother's Day 2016 the students delivered cookies and other treats made by a group of registered nurses and their children.<sup>130</sup>

## Conclusion

The history of the U of C Faculty of Nursing is thus a storied journey from apprenticeship bedside care to individualized and specialized health provision. The place of the nurse within the medical landscape has fluctuated significantly throughout the previous half-century.<sup>131</sup> These changes have, in turn, impacted the nursing program and shaped the curriculum focus of nursing students within the Faculty of Nursing. The 1970s ushered in a heightened focus on health promotion and the importance of the patient-nurse relationship, with communication the core feature of nursing studies and practice during this period.<sup>132</sup> This relationship included the occupation of the social spaces between medical diagnosis and patient

care—emphasizing the need for family care and education in health maintenance for healing patients.

As the nursing profession in Alberta solidified into larger unified organizations such as the Alberta Nurse Educators Association, the Faculty of Nursing at the University of Calgary responded with curriculum changes and an increased focus on population health. The concern with the family, which featured heavily in early training and practice, was expanded to include larger factors that likewise impacted health outcomes. Social, political, and economic environments were recognized and included in a comprehensive, systems-focused approach to nursing care.

The expanded nursing program faced many trials in the late 1980s and '90s due to the monetary cuts to the overall health-care system in the province. Spending on nursing care decreased significantly and the previous strides in health-care expansion made in the economic boom of 1970s was halted<sup>133</sup>—and even, in some cases, reversed. It was within this difficult context that the nursing profession reoriented itself within a new health-care system. There was a distinct move toward specialization within the clinical and hospital setting. Additionally, the need for more intensive baccalaureate education in nursing was implemented as a necessary requirement for many positions in the profession.

This increased education—which included hands-on experience in the nursing environment and a broad-based, comprehensive curriculum that included a focus on public health—has since expanded into a diverse and thriving nursing program at the University of Calgary. In recent years, encouraged by the perceived need for a deeper understanding of the social determinants of health, there has been an expansion of research initiatives and graduate programs for nursing students. Additionally, the faculty has taken steps toward culturally comprehensive care and international connections. An associated Faculty of Nursing was established in Doha, Qatar, on the Arabian Peninsula, in 2006, with an undergraduate studies program that is modelled after the one in Calgary.<sup>134</sup> This has ensured that the current faculty is involved in nursing practice on a global scale, while still providing care to local communities and clinics in Alberta. This adaptation and incorporation of the changing landscape of health care across the province, the country, and indeed the world, will continue to define the shape of the U of C Faculty of Nursing as it goes forward into the next half-century.

## NOTES

- 1 Joyce Prince, *The Third Winifred Raphael Memorial Lecture* (Bournemouth, UK: RCN, 1984), 8.
- 2 Ibid., 11.
- 3 Ibid., 36.
- 4 Ibid., 44.
- 5 Ibid., 45.
- 6 Ibid., 49. See also Marc Lalonde, *A New Perspective on the Health of Canadians* (Lalonde Report) (Ottawa: Government of Canada, 1973–4), <http://www.hc-sc.gc.ca/hcs-sss/com/fed/lalonde-eng.php> (accessed 14 January 2014).
- 7 Prince, *Raphael Memorial Lecture*, 49.
- 8 Muriel Uprichard quoted in Geertje Boschma, *Faculty of Nursing on the Move: Nursing at the University of Calgary, 1969–2004* (Calgary: University of Calgary Press, 2005), 52.
- 9 Prince, *Raphael Memorial Lecture*, 52–3.
- 10 Ibid., 55.
- 11 Ibid., 56.
- 12 Ibid., 57.
- 13 Ibid., 59.
- 14 Ibid., 60.
- 15 Ibid., 60–1.
- 16 Ibid., 62.
- 17 Ibid., 63.
- 18 Ardene Robinson Vollman, Elizabeth T. Anderson, and Judith McFarlane, eds., *Canadian Community as Partner: Theory & Multidisciplinary Practice*, 3rd ed. (Philadelphia: Lippincott Williams & Wilkins, 2012), 5.
- 19 Ibid.
- 20 Boschma, *Faculty of Nursing on the Move*, 63.
- 21 Vollman, Anderson, and McFarlane, *Canadian Community as Partner*, 69.
- 22 Ibid.
- 23 Ibid., 70.
- 24 Ibid., 5–6.
- 25 Boschma, *Faculty of Nursing on the Move*, 93.
- 26 Ibid., 93–5.
- 27 Vollman, Anderson, and McFarlane, *Canadian Community as Partner*, 7.
- 28 Jake Epp, “Achieving Health for All: A Framework For Health Promotion,” *Health Promotion International* 1, no. 4 (1986): 419–28.

- 29 Ibid., 419–20.
- 30 Boschma, *Faculty of Nursing on the Move*, 98.
- 31 Ibid.
- 32 Ibid., 101–2.
- 33 Ibid.
- 34 Ibid., 103.
- 35 Ibid., 105.
- 36 Ibid., 124.
- 37 Ibid.
- 38 Ibid., 125.
- 39 *The Rainbow Report: Premier's Commission on Future Health Care for Albertans*, vol. 1 (Edmonton: Government of Alberta, 1989), 64.
- 40 See also Pat Armstrong, Carol Amaratunga, Jocelyne Bernier, Karen Grant, Ann Pederson, and Kate Wilson, eds., *Exposing Privatization: Women and Health Care Reform in Canada* (Aurora, ON: Garamond Press, 2001), 264.
- 41 *Rainbow Report*, 64.
- 42 Boschma, *Faculty of Nursing on the Move*, 128.
- 43 Ibid., 146.
- 44 Ibid., 147 and 149.
- 45 Ibid., 150.
- 46 Vollman, Anderson, and McFarlane, *Canadian Community as Partner*, 18–19.
- 47 Ibid.
- 48 Boschma, *Faculty of Nursing on the Move*, 161.
- 49 Ibid., 28.
- 50 Ibid., 161–2
- 51 Ibid., 162.
- 52 Ralph Sutherland, *Will Nurses Call the Shots? A Look at the Delivery of Health Care Twenty Years from Now* (Ottawa: printed by the author, 1996), 23–4.
- 53 Boschma, *Faculty of Nursing on the Move*, 167.
- 54 Ibid., 196.
- 55 Ibid., 197.
- 56 “New from the Dean’s Office, Notes on Nursing,” *Faculty of Nursing Newsletter* 11, no. 7 (March 1995): 1. From University of Calgary Archives: UARC 2001.071, File 20.05.
- 57 Boschma, *Faculty of Nursing on the Move*, 183.
- 58 Ibid., 216–17.



- 59 Jennifer Zwicker and J. C. Herb Emery, "How is Funding Medical Research better for Patients? Valuing the Impact of Alberta's Health Research," *School of Public Policy Discussion Paper* (21 August 2015): 8.
- 60 Ibid., 201.
- 61 "Cyberactivity in Nursing: Changing Possibilities," *Faculty of Nursing Newsletter* 12, no. 9 (June 1996): 1. From University of Calgary Archives: UARC 2001.071, File 20.06, 5.
- 62 Ibid., 5.
- 63 Sharon Doyle Driedger, "The Nurses," *Maclean's*, (25 April 1997).
- 64 Ibid.
- 65 Ibid.
- 66 Miriam J. Stewart, ed., *Community Nursing: Promoting Canadians' Health*, 2nd ed. (Toronto: W. B. Saunders, 2000), 5.
- 67 Ibid., 17 and 27.
- 68 Ibid., 29.
- 69 Ibid., 49.
- 70 Ibid., 47.
- 71 Patricia Benner, Molly Sutphen, Victoria Leonard, Lisa Day, and Lee S. Shulman, *Educating Nurses: A Call for Radical Transformation* (San Francisco: Jossey-Bass, 2010), 31.
- 72 Stewart, *Community Nursing*, 49; and Benner et al., *Educating Nurses*, 25–6.
- 73 Stewart, *Community Nursing*, xix.
- 74 Benner et al., *Educating Nurses*, 31.
- 75 Ibid.
- 76 Ibid., 90.
- 77 Deborah Raines, "Moral Agency in Nursing," *Nursing Forum* 29, no. 1 (January–March 1994): 7.
- 78 Ibid. 5.
- 79 Boschma, *Faculty of Nursing on the Move*, 222.
- 80 Ibid., 223.
- 81 Ibid.
- 82 Ibid.
- 83 Ibid.
- 84 Ibid., 230 and 235.
- 85 Benner et al., *Educating Nurses*, 222.
- 86 Ibid., 31.

- 87 Canadian Nurses Association, "CNA Backgrounder (September, 2013)," [https://www.cna-aiic.ca/media.cna/page-content/pdf-fr/bg8\\_social\\_determinants\\_e.pdf](https://www.cna-aiic.ca/media.cna/page-content/pdf-fr/bg8_social_determinants_e.pdf), 5 (accessed 23 February 2019).
- 88 Ibid., 6.
- 89 Ibid.
- 90 Ibid., 8.
- 91 Ibid.
- 92 Lynette Leeseberg Stamur and Lucia Yiu, *Community Health Nursing: A Canadian Perspective*, 3rd ed. (Toronto: Pearson, 2005), 492.
- 93 Ibid.
- 94 Michael Villeneuve and Jane MacDonald, *Towards 2020: Visions for Nursing* (Ottawa: Canadian Nurses Association, 2006).
- 95 Faculty of Nursing, "Self-Report Form," in *Appendices for University of Calgary Faculty of Nursing Bachelor of Nursing Regular Track (BNRT) and the Joint Bachelor of Kinesiology (General) Bachelor of Nursing Regular Track Program*, book 1 (1 March 2007), 17. Henceforth *Appendices*.
- 96 See also Diane Trapp, ed., *Report to Community—2010–2011 Year in Review* (Calgary: University of Calgary Faculty of Nursing, 2011), 2.
- 97 Gayle Rutherford, "Application for Conjoint Health Research Ethics Board" (June 2008), 4.
- 98 Janet Umphrey (Calgary Health Region senior vice-president), "Letter of Support," in *Appendices*.
- 99 Faculty of Nursing, *University of Calgary Faculty of Nursing Bachelor of Nursing (BNUR) Program Introduction to the Historical Context and Curriculum Revisions (Draft)*, 2.
- 100 Ibid.
- 101 Ibid.
- 102 Ibid.
- 103 Faculty of Nursing, "The University of Calgary Faculty of Nursing Bachelor of Nursing Program Philosophy" (approved 19 May 2009).
- 104 Ibid.
- 105 Ibid.
- 106 Ibid.
- 107 Ibid.
- 108 Ibid.
- 109 *Appendices*, 4.
- 110 "The University of Calgary Faculty of Nursing Bachelor of Nursing Program Philosophy," 4.

- 111 Vollman, Anderson, and McFarlane, *Canadian Community as Partner*, 15.
- 112 Faculty of Nursing, *Self-Assessment* (February 2014), 10.
- 113 Faculty of Nursing, "University of Calgary Faculty of Nursing Integrated Context-Relevant Curriculum: Overview" (Calgary: University of Calgary Faculty of Nursing, 2015), 1.
- 114 See, for example, Cathryne M. Laing and Nancy J. Moules, "Social Return on Investment: A New Approach to understanding and Advocating for Value in Healthcare," *Journal of Nursing Administration* 47, no. 12 (2017): 623–8.
- 115 Faculty of Nursing, "Integrated Context-Relevant Curriculum," 1 and 3.
- 116 Ibid., 4.
- 117 Dianne Laflamme-McCauley, email to author ("Faculty of Nursing Vision and Mission Statements, 2014"), 22 July 2014.
- 118 Sutherland, *Will Nurses Call the Shots?*, 7.
- 119 Laing and Moules, "Social Return on Investment," 625.
- 120 Gayle Rutherford, Jennifer Langille, J. David Patterson, and Zahra Shajani, "Flood Disaster Response: Calgary, Canada," in *Canadian Community as Partner: Theory & Multidisciplinary Practice*, ed. Ardene Robinson Vollman, Elizabeth T. Anderson, and Judith McFarlane (Toronto: Wolters Kluwer, 2016), ch. 24, esp. 334–5.
- 121 Ibid., 336.
- 122 Ibid.
- 123 Ibid., 337 and 339.
- 124 See, for example, Vanita Sahni, Allison N. Scott, Marie Beliveau, Marie Varughese, Douglas C. Dover, and James Talbot, "Public Health Surveillance Response following the Southern Alberta Floods, 2013," *Canadian Journal of Public Health* 107, no. 2 (2016): e142–e148, <https://journal.cpha.ca/index.php/cjph/article/viewFile/5188/3394> (accessed 30 September 2018).
- 125 Nicola Cherry and Whitney Haynes, "Effects of the Fort McMurray Wildfires on the Health of Evacuated Workers: Follow-up of 2 Cohorts," *Canadian Medical Association Journal—Open* 5, no. 5 (2017): E638–E645, [https://www.researchgate.net/publication/319180839\\_Effects\\_of\\_the\\_Fort\\_Mcmurray](https://www.researchgate.net/publication/319180839_Effects_of_the_Fort_Mcmurray) (accessed 30 September 2018).
- 126 Regional Municipality of Wood Buffalo (@RMWoodBuffalo), "We have successfully evacuated 88,000 people with no reports of injuries or casualties so far," Twitter, 4 May 2016, <https://twitter.com/RMWoodBuffalo/status/727897683940257792> (accessed 10 May 2016).
- 127 "University of Calgary on Standby to Support Fort McMurray Fire," *UToday*, 6 May 2016, [www.ucalgary.ca/utoday/issue/2016-05-09/fort-mcmurray-fire-evacuees-welcomed](http://www.ucalgary.ca/utoday/issue/2016-05-09/fort-mcmurray-fire-evacuees-welcomed) (accessed 10 May 2016).
- 128 Ibid.
- 129 "Nursing Students Join Mental Health Experts to Support Evacuees," *UToday*, 19 May 2016, <https://www.ucalgary.ca/utoday/issue/2016-05-19/>

- nursing-students-join-medical-mental-health-experts-support-evacuees (accessed 30 September 2018).
- 130 Electronic communication from Dave Patterson, 15 November 2018.
- 131 Compare with the account of fifty years ago contained in Morley A. R. Young, "A General Practitioner Considers Nursing Education," in *Nursing Education in a Changing Society*, ed. Mary Q. Innis (Toronto: University of Toronto Press, 1970), 172–83.
- 132 Ibid., 176–9.
- 133 Herbert J. C. Emery and Ronald D. Kneebon, "Socialists, Populists, Resources and the Divergent Development of Alberta and Saskatchewan," *Canadian Public Policy* 34, no. 4 (2008): 419–40.
- 134 Faculty of Nursing, "History of the Faculty," <https://nursing.ucalgary.ca/history> (accessed 24 February 2019).

## Clinical and Health Psychology at the University of Calgary and its Contribution to Health Care in Alberta

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In this chapter we highlight important contributions by members of the Department of Psychology to the development of health care in Alberta, both health care proper and mental health. Although the department has never had an official health psychology program, many of its members have participated in health-related activities and research over the years and are now, more than ever, involved in many aspects of research and clinical work, both in the adult and child sectors of what is now called Alberta Health Services. The major impetus for the creation of health research in psychology was the expansion of the discipline itself, in competition with other professions for the new fields of psychological and social determinants of health and illness.<sup>1</sup> The department's main contribution, however, was the creation of a clinical psychology program (itself the result of a twenty-year process).<sup>2</sup> We will argue that it was also the presence of large-scale medical research and treatment facilities, like the Foothills Hospital (now the Foothills Medical Centre) and the Alberta Children's Hospital, that supported the research enterprise at least in part. Although these broader institutional and disciplinary trends could be seen in the Department of Psychology as it matured in the new university, the department also had a number of unique features that led to its involvement in multiple health-related activities, especially the so-called Blair Report.<sup>3</sup>

## Beginnings

The Department of Psychology was founded in 1962.<sup>4</sup> By then the university had moved to the new campus of the University of Alberta in Calgary (UAC), but the founding member of the department, Aaron Eliezer David Schonfield (1920–95), who went by David Schonfield, had offered courses in psychology since 1960. Schonfield had a master's degree from Cambridge University and was hired in 1957 to teach in the Faculty of Education, located on the old campus at the Southern Alberta Institute of Technology.<sup>5</sup> With the opening of a new campus, the UAC changed its name to the University of Alberta, Calgary, which would change in 1964 to the University of Alberta at Calgary, and again in 1966 to the University of Calgary, after the provincial government granted the new campus autonomy.<sup>6</sup> By then Schonfield had been promoted to Professor, but he resigned as head after a disagreement with the dean of the faculty.

After a year under Charles Costello as acting head, William Robert Nelson Blair (1915–90), known as “Buck” Blair, became the new department head. Blair had been a senior military psychologist in the Canadian army and had been a sessional lecturer at both the University of Ottawa and Carleton University. Shortly after arriving in Calgary, he would be asked to head the Alberta Mental Health Study, which resulted in a report that eventually became known as the “Blair Report.”<sup>7</sup> This was not the only contribution Buck Blair made to mental health in Alberta, however: he also initiated the annual Banff International Conference on Behaviour Modification in 1969, and chaired the newly established Provincial Mental Health Advisory Council from 1973 to 1976. In 1973, the Canadian Mental Health Association (Alberta) appointed him honorary president, and in 1974 he was presented with the Alberta Distinguished Achievement Award for “outstanding public service in the field of mental illness and mental health.”<sup>8</sup> In 1976, Blair wrote a report for the University of Calgary on optometry and recommended that the new medical school include training in optometry, a recommendation that was not adopted.

## The Blair Report

The Department of Psychology's first great contribution to the health care of Albertans would be the Blair Report. Published in April 1969, it was

entitled *Mental Health in Alberta: A Report on the Alberta Mental Health Study*.<sup>9</sup> The report involved a comprehensive evaluation of mental health services within the province and wide-ranging recommendations for improvement. Preceded by the White Paper on Human Resources Development that was presented to the Legislative Assembly on 17 March 1967,<sup>10</sup> the study was first announced on 24 November 1967 at a press conference with Premier Ernest C. Manning and Minister of Health J. Donovan Ross. Two objectives were specified: 1) to “provide an objective province-wide assessment of resources and evaluation of needs for maintaining mental health and treating mental illness”; and 2) to “make recommendations for the development of an improved comprehensive and integrated program for the diagnosis, treatment, care and rehabilitation of the mentally ill and for the prevention of mental illness in Alberta.”<sup>11</sup> The project was to unfold in two stages—an initial phase in which preliminary reports and recommendations were obtained from five sources (the volunteer sector, the Division of Mental Health, consultants, statistical analyses of the prevalence of mental illness in Alberta, and committees empowered to study relevant facilities, economic questions, and treatment and therapy), and a final phase in which the director would utilize the preliminary reports to provide “a summary report and recommendations for an improved comprehensive province wide mental health program”<sup>12</sup> to the Executive Council of the Government of Alberta.

Faculty in the Department of Psychology were actively involved in producing the Blair Report. Among the eleven study groups created to explore “broad areas of concern,”<sup>13</sup> the research in mental health group was chaired by Park O. Davidson (1937–1980), a member of the department who would soon leave for the University of British Columbia. Department faculty also served as members of the various study groups, including Park Davidson (northern mental health problems), David Gibson (1926–2006) (relative roles of professional personnel), and Charles Costello (1929–2019) (research in mental health). In addition, four of the eight special projects that focused on specific issues were undertaken by John Edwin (“Ed”) Boyd (1937–2003) and David Schonfield (1920–1995), with Boyd taking responsibility for the incidence of mental illness in Alberta, mental health in industry, and alcoholism problems in Alberta, and Schonfield overseeing mental health and the elderly. Finally, Park Davidson sat on the commissions that heard briefs at public hearings.<sup>14</sup>

Overall, the study generated 189 recommendations, 13 of which were prioritized. Underlying these recommendations was a set of 8 principles, which emerged during the study but, as noted in the report, supported the conclusions of an earlier report published by the Canadian Mental Health Association, *More for the Mind: A Study of Psychiatric Services in Canada*.<sup>15</sup> These principles reflected changing conceptions of mental health and mental health care at the time, although some seem remarkably relevant even today. For example, the importance of using resources optimally, avoiding duplication, finding efficiencies, and establishing an integrated system; the need to treat mental illness as one treats physical illness; and the emphasis on basic research and evaluation of programs are principles that apply readily to current times. However, the principles of identifying mental health issues in the early stages, treating them promptly, minimizing hospital stays, and developing rehabilitation programs outside of mental hospitals, though now taken for granted, were clearly informed by the new views of the day. The report specifically identified long-term hospitalization with additional problems for those with mental health challenges, and indicated that more needed to be done to ensure that those diagnosed with mental illness would return to the community and lead productive lives.<sup>16</sup> These principles can be seen in the recommendations that large mental hospitals be down-sized, more care be offered in general hospitals, and community facilities be developed further. The report appeared at the beginning of the de-institutionalization movement that would lead to the closure or downsizing of major psychiatric inpatient facilities throughout North America.<sup>17</sup>

Among the recommendations was a new mental-health-care system, organized into four “echelons.”<sup>18</sup> The lowest was to be composed of community facilities that included the school system, guidance clinics, family physicians, and social services. It was to serve the function of identifying and diagnosing mental health problems as well as providing educational, psychological, and medical treatment. The next level included general hospitals and special hospitals, for example, for “emotionally disturbed children,” and was to offer short-term treatment and follow-up care. At the third echelon were auxiliary hospitals and regional mental hospitals, which were to offer longer-term (but not “terminal”), specialized treatment. Finally, the fourth layer was to offer long-term care, primarily for



the aged, and entailed nursing homes and other special homes. Today's system bears a striking resemblance to the Blair Report's proposals.<sup>19</sup>

The report also brought forward recommendations related to the training of psychologists. As background, it noted that few psychologists worked in the mental health field, which meant that unqualified individuals (i.e., those lacking a relevant university degree and not registered with the Psychologists' Association of Alberta) were employed in psychology positions. Two obstacles were noted—the absence of training programs and inadequate remuneration.<sup>20</sup> It pointed out, however, that the Department of Psychology offered a relatively new program (i.e., only three years old) of practicum training for graduate students at the Alberta Hospital in Ponoka and the Alberta Guidance Clinic in Calgary, and argued for an extension of this program to the Foothills and the municipal legacy hospitals. Demonstrating a further link between the department and mental health services in the province, it identified senior psychologists at the Foothills Hospital (Stewart Meikle; 1924–2017) and the Alberta Guidance Clinic (Jean Linse Pettifor; 1922–2015) as holding academic appointments in the department. Interestingly, it also recommended that the Psychologists Act be amended, making a PhD in psychology the minimum legal requirement for psychologists in private practice, a recommendation that has yet to be implemented, despite continuous requests to bring Alberta up to date with the rest of the country.<sup>21</sup>

A second volume of *Mental Health in Alberta* appeared in March 1973, and it contained briefs and supporting material not included in the previous volume. Notable among these is a summary of David Gibson's contributions to the study group dealing with the roles of professional personnel. His submission pertained specifically to psychologists and it distinguished between “old” and “new” roles—that is, psychometricians who supported the work of medical and educational professionals versus “scientist-professionals” who served as consultants and took on “more demanding roles, for example, the treatment role.”<sup>22</sup>

David Gibson argued that the master's degree qualification for certification might be a more expedient way of serving the immediate needs of the community, but it hindered the recruitment of those with better qualifications from outside the province, perpetuated “the view of professional psychology as an ancillary service,” and offered little reason for universities in Alberta to train psychologists for the mental health field.

In outlining the new role for psychologists, he clarified the tasks to be assigned to “psychological technologists”—“assessment of ‘cognitive functioning, psychomotor and psychosensory status, emotional viability and socialization’; and of interests and aptitudes,” and participation in “behavioral modification processes, including group processes, individual counseling, play therapies, family therapies, situational manipulation and operant procedures.”<sup>23</sup> This work would be supervised by certified psychologists whose other tasks were to include “the development and improvement of technologies (i.e., for treatment, behaviour change, and rehabilitation); monitoring and evaluating the effectiveness of assessment and remediation; in-service training of technicians and technologists and other mental health workers.”<sup>24</sup>

David Gibson also submitted eight recommendations. Among these, he suggested that psychologists be trained within “Faculties of Arts and Sciences,”<sup>25</sup> and he explicitly argued against the “training of hyphenated psychologists by departments of educational psychology, medical schools and business schools.”<sup>26</sup> This recommendation has partially come to fruition today, in that the graduate program in clinical psychology is currently housed within the Faculty of Arts. However, students may also receive training that prepares them for certification as counselling psychologists within the Faculty of Education.<sup>27</sup> Additionally, Gibson recommended a BA program for technologists that combined “two years common with current behavioural science programs” and “two years assigned to applied training involving applied settings.”<sup>28</sup> This recommendation was never enacted. He also offered some interesting insights into the “orientation of psychology as a discipline,” for example, noting that a “disease model” had been largely replaced by a focus on “the development of human resources.”<sup>29</sup> By this he meant that mental health services should focus on “prevention of human distress at the individual, family and community levels” and on creating an educational system “aimed at optimum development and redirection of limiting deviations before disabling distress occurred.”<sup>30</sup> These were radical recommendations at the time. However, given that this was a government report, it must have been understood that these recommendations were unlikely to be acted on.

Elsewhere in the second volume, the Blair Report recommended, “Alberta does not have a psychological advisor working with the Department of Health. An advisor could help delineate the duties of psychologists,

coordinate their work, establish training plans and advice regarding research.”<sup>31</sup> Although never taken up as such, this recommendation nonetheless demonstrated the push to integrate psychological services in medical settings. Over the next four decades psychological services would gradually become a fixture in all major hospitals, both in Alberta and elsewhere in North America.

It should be noted that the Blair Report was supportive of Alberta’s infamous sexual sterilization program, which ran from 1928 to 1972.<sup>32</sup> During that time 2,822 people were sterilized, mostly institutionalized individuals who suffered from various forms of mental illness or disabilities, and after 1937, this was often done without their consent. The chair of the Eugenics Board for most of that time was the founding member of the University of Alberta’s Psychology and Philosophy Department, John MacEachran (1877–1971). In the board’s final years, both Buck Blair and David Gibson were members for a short time.<sup>33</sup> The Blair Report notes that the Sexual Sterilization Act, the act that created the Eugenics Board and enabled the sterilizations to proceed, “is considered generally quite adequate and justly implemented by the Chairman and other members of the Board. The members exercise mature caution in doubtful cases and exert no pressure in cases where patient consent is required.”<sup>34</sup> Subsequent historical examinations have, of course, undermined this somewhat banal assessment.<sup>35</sup> The case of Leilani Muir, who successfully sued the Alberta government in 1995 for wrongful sterilization, focused the attention of many academics on the eugenics program. And indeed, to this day historians are still working on this episode in Alberta history.<sup>36</sup>

Although the Blair Report did not lead to massive changes in the delivery of mental health care in Alberta, it was a monumental study of the state of care in the province in the late 1960s. As a historical record it is important, because it demonstrates clearly Alberta’s similarity to most jurisdictions in being prepared to make the kind of changes that would signal the end of the era of institutional care. In that respect the study, conducted in a relatively short time period, contributed both to the importance of mental health care in the province and the stature of the University of Calgary Department of Psychology.

## Establishing the Department

While many department members were involved in activities related to the writing of the Blair Report, the new department within the University of Calgary was nonetheless also preoccupied with the establishment of teaching and research. By November of 1966, shortly after autonomy was granted to the new university, the Department of Psychology applied for, and eventually received, permission to grant doctoral degrees. In its application, the department noted that it had “2 Full Professors, 6 Associate Professors and 7 Assistant Professors, all but one with the Ph.D. degree.”<sup>37</sup> Furthermore, the staff had research support of more than \$240,000 from 14 different agencies and had published a total of 205 articles and 3 books. This was a junior department but obviously a productive one. In an interesting comment in the report requesting doctoral studies status, the authors refer to a survey conducted by Roger Myers (1906–85) of the University of Toronto on behalf of the American Psychological Association. They quote Myers as arguing that “an absolute minimum requirement for usable research space [in a standard research-intensive psychology department] should be at least 1500 sq. ft. per full-time member of staff.”<sup>38</sup> The report notes that the department at that time had a total of 133 square feet (including laboratory, office, and seminar room space) per full-time member of staff.<sup>39</sup>

Despite the traditional laboratory-based appearance of the new department, a number of faculty were already engaged in health-related research. In its application for doctoral-degree-granting status, it was noted that research space was available in the Foothills Hospital for operant conditioning and psychopathology research, in the Division of Alcoholism Studies for summer research, at the Provincial Guidance Clinic, and at the Ponoka Hospital in Ponoka, Alberta. Furthermore, construction was slated to begin in 1967 on the new Vocational Rehabilitation Research Institute (VRRI), located across 32nd Avenue NW, and several members of the Department of Psychology would be involved with the VRRI over the years, including David Gibson, Larry Mosley, and Robert Sainsbury.

David Gibson had spent approximately seven years working at the Ontario Hospital School in Smith Falls (now the Rideau Regional Centre), where he became chief psychologist. He was also a co-founder and director of the VRRI with Roy Brown.<sup>40</sup> The VRRI was an independent research

institute within the university and was initially funded by a combination of government and Rotary Club funds. It was responsible for conducting research into rehabilitation for mentally handicapped individuals and was involved in sheltered workshop activities. The department's Robert Sainsbury would be the chair of the VRRI's board for fifteen years—its longest-serving chair—and would oversee the transition of the VRRI to a community-based program. In later years J. Lary “Larry” Mosley (b. 1941) would also be a long-time board member along with Susan Graham (b. 1966), both members of the Department of Psychology.

## Health, Mental Health, and Psychopathology

From its earliest days, the department was involved in research on what was referred to as “abnormal psychology” in most universities but was called “psychopathology” at the University of Calgary. The new PhD program, when it came on stream, included a separate program in the field of psychopathology, later referred to as the “program in experimental psychopathology.” The choice was rather unique, reflecting the research interests of David Gibson in what was then still called “mental retardation,” and the faculty's adherence to a concept of psychopathology that was based on a behaviourist model favoured by those who were graduates of British universities. The transition from research in experimental psychopathology to a full-fledged, accredited clinical psychology program would take more than twenty years, and would not occur without multiple disagreements and conflicts.<sup>41</sup> However, during this period many faculty members would at one time or another be deeply involved in health-related activities at a clinical, administrative, or research level. This is still very much the case today.<sup>42</sup>

Why the interest in health and clinical psychology, broadly conceived? None of this was accidental, as the Department of Psychology was very much in tune with the discipline as a whole, and influences on the discipline included the changing missions of universities, market pressures, and the massive restructuring of health care and medicine in North America in the post-Second World War era.<sup>43</sup> To date there is no written critical history of psychology and its unique location in health care. There are, however, plenty of celebratory histories that attempt to draw a line back to the origins of psychology and demonstrate psychology's health-care

“interests” as far back as the nineteenth century.<sup>44</sup> However, this is to miss the essential features of psychology’s history. Beginning its life as a form of philosophical research in Germany in the late nineteenth century, the discipline did not become anything resembling the modern science of psychology until it had crossed the Atlantic and settled in the large American universities.<sup>45</sup> In this context, American psychologists who had studied in Germany left behind the fledgling enterprise they had learned in Leipzig under psychology’s founder, Wilhelm Wundt (1832–1920), and began a promising discipline that could solve social problems, the kind of social problems encountered in the rapidly urbanizing, industrial United States of the period.<sup>46</sup>

The new practical and applied science of psychology that was fostered in the United States did not fully come to fruition until after the Second World War, for many reasons.<sup>47</sup> It was only then that the branches of psychology most closely allied to health care, clinical psychology and health psychology/behavioural medicine, began to take shape. The idea of a specialized health psychology that supported a new professional designation with its own research agenda, journals, organizations, conferences, and university training programs was uniquely related to at least four developments in the 1960s and ’70s, in what was then referred to as the First World or sometimes just “the West.”<sup>48</sup> First, the prevalence of chronic illnesses increased substantially as many acute illnesses were successfully treated with antibiotics, vaccines, and other preventative approaches. Chronic illnesses (e.g., cancer, heart disease) are long-term illnesses with acute phases, and hence their symptoms are sometimes amenable to psychological interventions. Second, the demise of neo-behaviourism as a core theory and central theoretical dogma of psychology furthered the possible emergence of multiple sub-disciplines only loosely centred on core principles, which gradually shifted to cognitive psychological principles. Third, the demographics of psychology changed. Like many other disciplines, psychologists found no shortage of academic work opportunities in the 1950s and ’60s, as universities expanded rapidly in the immediate aftermath of the war. However, by the late 1970s the number of available professional positions declined, while the number of PhDs continued to increase—and this phenomenon was also experienced at the University of Calgary; that is, the shifting job market created the need for more practically oriented psychologists. Finally, another major influence

on the emergence of health psychology/behavioural medicine was the professionalization of other practitioners. Nursing, family medicine, psychiatry, and physiotherapy—among other health professions—all added psychological aspects of health and illness to their domains of expertise.<sup>49</sup> Numerous professions were competing for a similar domain in the rapidly expanding health-care fields: all were determined to put their stamp on psychological aspects of health and illness.

One might in this context add a fifth consideration—namely what is sometimes called the “feminization” of psychology.<sup>50</sup> The increasing participation of women in the helping professions included psychology, and sometime in the late 1970s, women pursuing doctoral degrees in psychology in both Canada and the United States outnumbered men.<sup>51</sup> In the province of Alberta today about 65 per cent of all psychologists are women, and that number is still growing. Approximately 75 per cent of undergraduate students in psychology are women. Of particular interest is the fact that one of the earliest members of the Department of Psychology, June Adam, was asked by the Association of Universities and Colleges of Canada to write a report.<sup>52</sup> In it she documented women’s increased participation rates in Canadian universities in the 1969–70 academic year, which were 34.4 per cent in Canada overall, and 37.34 per cent at the University of Calgary.<sup>53</sup> By 1987, more than two-thirds of Alberta undergraduate psychology majors were women. In this sense, the provincial development reflected a broader global trend: until the 1960s psychologists were predominantly male, yet since the 1970s they have been predominantly female, and this has led to profound changes in the discipline itself.<sup>54</sup>

## The Calgary Department and Health Psychology

Institutionally, the department’s interests in health and illness follow closely on general trends in the discipline. In 1978, the *Journal of Behavioral Medicine* was launched, followed by at least half a dozen journals in short order, and a Division of Health Psychology was added to the American Psychological Association (APA). In that same year, the Academy of Behavioural Medicine Research and the Society for Behavioural Medicine were both founded. By this point, almost 2,500 psychologists (or 5 per cent of the APA’s membership) were on the faculties of US medical schools.<sup>55</sup> The various organizations and societies quickly increased in number and



added to the already rich array of names associated with psychologists working in health care (e.g., psychological medicine, psychosomatic medicine, clinical health psychology, and so on). In the end, even within psychology numerous sub-fields were competing for similar academic and professional terrain.

It should be noted that psychology's foray into health did not go without criticism, namely of its wholesale adoption of a biomedical model of illness. One of those early critics was Henderikus Stam, whose first critical account was published in 1988. In July 1999, he gave the opening keynote address to the newly formed International Society of Critical Health Psychology (still very much active), which was devoted to understanding the social, political, and cultural dimensions of health and illness while remaining openly critical of much of health psychology.<sup>56</sup> That organization serves as a reminder that health is still a contested topic in the social sciences.<sup>57</sup>

Among the first professors hired in the early 1960s after the Department of Psychology was founded were a number of researchers and clinicians with broad interests in health and mental health. Charles Costello, who arrived in 1965, had worked at the Regina General Hospital as a clinical and research psychologist. Robert ("Bob") Dewar, as a master's-level psychologist, had also worked in the Saskatchewan hospital system prior to moving to McMaster University to complete a PhD and turning his interests toward human-factors research. Saskatchewan's psychiatric research and treatment was world renowned after the Co-operative Commonwealth Federation government of Tommy Douglas (1904–86) asked American medical historian Henry E. Sigerist (1891–1957) to make recommendations for improving health care in the province.<sup>58</sup> The Saskatchewan Psychiatric Services Branch created one of the most innovative systems of mental health care in the world, and it attracted young professionals interested in new forms of research and treatment. Included in those treatment options was research into a new compound, lysergic-acid-diethylamine-25, more commonly known as LSD, for the possible treatment of mental illness.<sup>59</sup> Both Bob Dewar and Charles Costello had been involved in the early LSD research, and Costello had published a paper on the use of LSD combined with behaviour therapy.<sup>60</sup> Thus, in its earliest years the department benefited from junior faculty who had worked in innovative professional environments.



Those researchers in the department who focused on psychopathology created a group under which they planned to offer a PhD program. Park Davidson (d. 1980), David Gibson (1926–2006), and Ihsan Al-Issa, along with Charles Costello (1929–2019), had considerable expertise and formed the core of a group that would continue under the name of psychopathology for approximately twenty years. Davidson, a Queen's University PhD, had been a senior psychologist at the Provincial Guidance Clinic in Edmonton from 1962 to 1964. Unfortunately, he quickly moved into administration as the associate and acting dean of the Faculty of Graduate Studies, and he left the University of Calgary to become the director of the new graduate program in clinical/community psychology at the University of British Columbia.<sup>61</sup> Ihsan Al-Issa received his PhD in 1962 while working in the experimental psychology laboratory of German émigré psychologist Hans Eysenck (1916–97) at University College London. He had also spent a year as a clinical psychologist in the famed Netherne Hospital in Surrey, England.

This group promoted themselves as “experimental psychopathologists,” a rarity in Canada given how little that designation was used within the discipline throughout North America, but unsurprising given the British educational backgrounds of several of its members, as noted above. The premise of this program was that the procedures and concepts of experimental psychology could be applied to the problems of psychopathology, the influence of Hans Eysenck being obvious here.<sup>62</sup> The stated goal of the group was to train graduates to conduct research in applied settings such as clinics and hospitals, places where clinicians had little time to devote to research. This “in-between” position, however, would soon clash with the vision of more clinically oriented colleagues hired by the department in subsequent years. To understand the nature of this clash, we need to understand the nature of clinical psychology at the time.

## The Origins of Clinical Psychology

The term “clinical psychology” goes back to the 1890s, if not earlier, and is often depicted as a specialty that grew up within psychology itself.<sup>63</sup> The origin myth of the discipline is that a psychologist at the University of Pennsylvania by the name of Lightner Witmer (1867–1956) had opened a psychological clinic in the 1890s. As close as this seems to a clinical psychological practice, it was a school clinic devoted to troublesome children.

The notion of psychotherapy would take years to develop, and it would be psychoanalysis that would disseminate popular conceptions of the “talking cure.”<sup>64</sup>

However, in the United States psychoanalysis assumed a monopoly on psychiatry, leaving psychologists shut out of the psychotherapy field and confined to the labour of testing and assessment.<sup>65</sup> The project of test development was heightened by psychologists’ involvement in the US Army during the First World War, when Robert Yerkes (1876–1956) from Yale University and his colleagues developed group intelligence tests. Yet attempts to add clinical dimensions to the education of psychologists were resisted by both professional organizations such as the APA and educational institutions.<sup>66</sup>

It would take another world war before the creation of what we know today as “clinical psychology.” Capshew shows that it was not until the 1940s that psychologists could obtain a degree in clinical psychology in the United States.<sup>67</sup> Together, the Veterans Administration (VA) and the United States Public Health Service (USPHS) called on psychologists to provide service to veterans in 1942. The APA supported this endeavour by lobbying doctoral programs to train clinical psychologists. The VA then provided practicums and internship programs, while the USPHS provided the funds for training.<sup>68</sup> Hence, as a professional designation, clinical psychology was largely the brainchild of American federal government agencies.<sup>69</sup> It was quickly followed by a rapid rise in training programs and changes to the psychology curriculum.

But it was one thing to create a new psychological professional specialty, quite another to determine just what that psychological practice would look like. If psychiatry had pharmaceuticals, psychology would rely on science for its practical foundations. This was formalized at a conference in Boulder, Colorado in 1949, when a report by psychologist David Shakow (1901–81), of the University of Illinois at Chicago, was accepted for a scientist-practitioner model of training that is often referred to as the Boulder model.<sup>70</sup> The late 1950s, however, was marked by conflicts between those who took what was called a “humanistic” orientation to practice, and who followed psychologists such as the University of Wisconsin’s Carl Rogers (1902–87), versus those who were intent on making behavioural principles the foundation of clinical practice.<sup>71</sup>

One of the reasons that the Calgary department took so long to develop a clinical program was that internal dissension about the nature of psychology and the appropriate place of science in the curriculum was manifest, as it was in the discipline at large, at least as far as North America was concerned.<sup>72</sup> The dual task of training clinicians and scientists was always more honoured in the breach than in the observance. Most clinical training programs emphasized clinical work over research, and therefore psychology departments were resistant to new clinical programs in the 1950s and '60s, which they saw as watering down their scientific aspirations. Even if the faculty supported a strong research program, students frequently leaned towards practice, as they saw this as their eventual occupation.<sup>73</sup> However, as the economic tide turned and the limits to the seemingly endless growth of psychology departments became obvious in the late 1960s, many departments also realized that clinical psychology programs provided them with a continuing source of excellent graduate students who would not have to struggle for academic jobs.

## Calgary's Clinical Psychology Program

The first intimations of the desire for a clinical psychology program were already present in the early 1970s. Given that a program in "experimental psychopathology" was not a natural fit in a North American context, a proposal for a clinical program was circulated as early as May 1972. Nelson Cauthen, Eric Mash, and Stewart Meikle developed the proposal and brought it to a department meeting on 1 June. Cauthen would leave the department soon after to work as a clinical psychologist in the United States. Mash, a renowned expert in child and family disorders, remained a long-time member of the department. Meikle worked half-time as the head of the Division of Psychology in the Foothills Hospital and would have a permanent position in the Department of Psychology until his retirement in 1985. Like Ihsan Al-Issa, Charles Costello, and David Schonfield, he, too, had been educated in England at University College London.<sup>74</sup> The department, however, rejected this 1972 proposal and sent the committee back to the drawing board with additional members David Gibson and Jean Pettifor. The latter was not a member of the department but had been active as a founding member of the Psychologists' Association of Alberta and worked as a psychologist for Alberta Mental Health

Services. According to minutes from departmental meetings at the time, Pettifor was added for her connections in the community, which would be important for practicum and internship placements.<sup>75</sup>

One of the issues that the committee faced was implementing a program in a “no-growth” period.<sup>76</sup> The days of continuous and steady funding increases came to a sudden end with the defeat of the Social Credit government in August 1971.<sup>77</sup> Although the new Progressive Conservative government was initially not hostile to post-secondary education, a drop in enrollments in the early 1970s created problems for the new university.<sup>78</sup> The 1970s were replete with talk of budget cutbacks, drops in enrollment, and frozen wages. Hence the department also asked the committee to consider the option of running a clinical program that was essentially an experimental psychopathology program with summer practicums and a post-MSc or post-PhD internship added on. Eric Mash resigned from the committee at this point and Buck Blair took his place. As department minutes of the time indicate, the brakes were applied and the new committee was to recommend interim steps for the development of a program of practicum training in experimental psychopathology. Hence, once again, a full-fledged clinical program was off the table.<sup>79</sup>

Another proposal for a new graduate program was floated in the early 1970s, and this was a proposal for a much broader graduate program in community psychology. It was presented by a committee headed by Timothy B. (“Tim”) Rogers, who had arrived in 1970, and included Eugene (“Rusty”) Edgington (1924–2013), Bruce Dunn, and Steve Milstein. This program was intended to include clinical psychology in a wide-ranging program of graduate studies that would include all applied areas of psychology. This program, too, did not make it out of the gates. As Tim Rogers noted many years later, “it gained very little traction as inter-sub-disciplinary traditions interfered.”<sup>80</sup> Department members Park O. Davidson (1965–2008) and Ken Craig (both of whom would shortly leave for the University of British Columbia) were traditional clinical psychologists whose interests lay in creating a clinical program.<sup>81</sup>

It would be some years before the department tried again to launch a clinical program. This time, however, it was to be a joint program with the Department of Educational Psychology, which, in the meantime, had added clinical psychology to its training profile of counselling and school psychology. That meant that there was already a clinical psychology program

on campus, even if it was part of a mixed program.<sup>82</sup> Nevertheless, as clinical psychology played only a small role in educational psychology's overall roster of activities, members of the Department of Psychology felt that they could augment that program and create a separate joint program. By 1978 a new program, labelled the Clinical/Community Program, was discussed in the department, but did not go forward, particularly since there was some confusion about just what was involved in "community" psychology.<sup>83</sup> An attempt to create an undergraduate community program also failed according to department minutes of the time.<sup>84</sup>

Sometime in late 1978 or early 1979 another proposal was created and forwarded to the provincial government when it was learned that the University of Alberta was also working on a clinical program proposal. A psychiatrist was appointed by the government to examine clinical training in the province and to see if there was room for one or two programs.<sup>85</sup> At the same time, work continued on an integrated clinical internship program that would support a new clinical psychology program. By October 1979 Stewart Meikle reported some success in establishing possible internships at the Alberta Children's Hospital, the Foothills Hospital, the General Hospital, and the Holy Cross Hospital. Now, however, a new roadblock appeared, since internships were not required for an academic program and they would have to be conducted outside the scope of an academic degree. Given that, at the time, all that was required to register as a psychologist in the province of Alberta was a master's degree, providing internships outside the context of an academic program for which students would not be paid appeared to doom the idea among those faculty who would have been involved in the training. The department, at least as reported in retrospect, was not favourable to such a proposal.<sup>86</sup>

By May 1980 the department agreed to enter negotiations with the educational psychology program. Roy Brown and Barry P. Frost, the senior members of the program, along with Stewart Meikle, had agreed to meet department head Ronald E. ("Ron") Schaub, noting that "the time is right."<sup>87</sup> By 1983, however, the negotiations had failed and the Department of Psychology began to prepare a proposal to go on alone. The Faculty of Graduate Studies appointed a committee to investigate the issue, and it suggested a joint program housed in an Institute of Clinical Psychology. At that point Donald ("Don") Bakal and Larry Mosley proposed another alternative, a joint program between the two departments that would not

require the establishment of a separate institute, since the department did not favour the latter.<sup>88</sup>

This proposal was ready by April 1984, at which point it was submitted to the dean of graduate studies and the appropriate channels. It was an expensive proposal requiring eight new faculty members along with support staff and research assistants. By the fall it had been reviewed and passed through for consideration at higher levels of the university. It appeared that a clinical training program might yet become a reality. By late 1984 the proposal had been vetted by the deans, and in 1985 it was submitted to the Universities Coordinating Council for approval before being sent to the provincial government. The council gave its unanimous approval and submitted it to Alberta's Department of Advanced Education.<sup>89</sup>

However, times had changed and the era of reduced budgets was in full swing. At some point in the next year, the proposal came back to the university with a request for revisions. The revised program then stalled—according to a report by the head of the Department of Psychology, by September 1988 the proposal was still at the university and was purportedly sitting on the vice-president academic's desk.<sup>90</sup> The University of Alberta—so went a rumour—had also submitted a proposal for clinical training.<sup>91</sup> Despite all the pressures from the department's faculty concerning the lack of progress and complaints from faculty, the university held tight and did not support the clinical psychology proposal by forwarding it to the government for consideration.<sup>92</sup> It was rumoured that this was likely due to the administration's preference for proposals from other units in the university in this time of scarcity, but there was never any direct evidence of this.

By 1990, the Department of Psychology attempted once again to create a program on its own, this time under the leadership of Keith Dobson, who had come to the department in 1989 after having been a faculty member in an established clinical psychology program at the University of British Columbia. The dean of graduate studies brought the two departments together in an attempt to forge a joint program. Sandra Pyke from York University was brought in as an external consultant, and she also recommended that it be a joint program between the Departments of Psychology and Educational Psychology. Directorship of the program was to alternate between the two departments. This time, with little additional resources, the program became a reality—now fully twenty years after the

first attempts to create one. Keith Dobson (psychology) served as the first director for three years, followed by David Romney (educational psychology). Doctoral-level training within the formally approved graduate program in clinical psychology using a scientist-practitioner model was first offered in 1993.<sup>93</sup> Lynn Hesson was the first graduate of the joint program in 1994. CPA accreditation was obtained in 1995 for an initial three-year term. In addition to Romney, Kathleen Cairns and Anita Li from the Department of Educational Psychology joined Don Bakal, Charles Costello, Bonnie Kaplan, Keith Dobson, Eric Mash, Ihsan Al-Issa, and Henderikus J. (“Hank”) Stam from the Department of Psychology.

When David Romney stepped down early, Kathleen Cairns (educational psychology) took over. She prepared a proposal to move the program as a single unit into another faculty; however, this did not materialize, which led to some pressure for a more permanent solution to the administrative housing of the clinical program. When Cairns stepped down in 1997, David Bercuson, the dean of the Faculty of Graduate Studies, suggested that the program’s administrative home be the Faculty of Social Sciences, and that it become a faculty program.<sup>94</sup> Keith Dobson became the director of the program once again, ensuring its stable development from then on. This move was formalized in 1998, at which point most of the program faculty from the Department of Educational Psychology resigned and David Romney joined the Department of Psychology.<sup>95</sup> In 2000, the dean of the Faculty of Social Sciences, historian Stephen Randall, moved the program into the Department of Psychology. That same year, the Department of Psychology hired Susan Graham, with interests in child psychology, David Hodgins, with interests in addictions (who had been a full-time psychologist at the Foothills Hospital), and Kristin von Ranson, with interests in eating disorders, to further enhance the program. As a sign of the program’s stability, it has consistently received CPA accreditation since 1995.<sup>96</sup>

The clinical program is deeply connected with the local Calgary community. Every fall the program conducts a workshop and lecture for students and community members, and community members participate broadly on student examining committees. The students conduct practicum placements throughout the length of their program in clinical and mental health settings in the community, most often in the city’s hospitals. Furthermore, the local hospitals have been one of the largest



employers of the graduates of the program:<sup>97</sup> up to one-third of our graduates work in the Calgary health-care system. Our graduates have also taken positions in universities throughout Canada and as far away as Australia and New Zealand.<sup>98</sup>

More recently, new appointments to the clinical program have further cemented our relationship with the local health community. Vina Goghari, who joined the department in 2009 but is now at the University of Toronto, conducts functional and structural neuroimaging studies of mental disorders.<sup>99</sup> Lianne Tomfohr-Madsen holds a clinical psychology professorship and conducts research on a number of psychosocial variables and health outcomes.<sup>100</sup> Keith Yeates is a member of the clinical program and holds the Ward Chair of Pediatric Brain Injury; currently, he is also the interim head of department. His research is focused on the outcomes of childhood brain injury.<sup>101</sup> Sheri Madigan is a Tier II Canada Research Chair and a member of the Alberta Children's Hospital Research Institute (ACHRI). Her research is focused on determinants of children's early social, emotional, and cognitive development.<sup>102</sup> Also a member of the ACHRI and a new member of the program is Melanie Noel, who conducts research in pediatric pain and the effect of children's anxiety and fear on pain memories.<sup>103</sup> Finally, as of July 2017 Brandy Callahan joined the department as a Tier II Canada Research Chair in Adult Clinical Neuropsychology.

## Contemporary Health Research in the Department of Psychology

The Department of Psychology continues a long tradition of engagement in health-related topics. After Stewart Meikle's retirement from the Division of Psychology at the Foothills Hospital, Don Bakal held that position and established the first course in behavioural medicine in the department, the name of which was later changed to the Department of Health Psychology. He also published one of the very early textbooks in behavioural medicine,<sup>104</sup> and was widely known for his work on headaches.<sup>105</sup> Hendrikus Stam was a half-time psychologist in the Department of Psychosocial Resources at the Tom Baker Cancer Centre from 1983 to 1987, and also conducted research on psychosocial oncology for the better part of a decade. Gerald Devins, who was in the Department of Psychology in the



1980s, conducted research on psychological aspects of renal disease. Tavis Campbell has been especially active as a health researcher since joining the Department of Psychology and the clinical program. Conducting studies on topics ranging from hypertension to sleep deprivation in cancer, his general orientation is to understand the bio-behavioural mechanisms involved in the development and progression of chronic illnesses.<sup>106</sup>

The department always had an ongoing research presence in the area of aging and psychogerontology. David Schonfield, as the founding member of the department, had a life-long interest in aging and cognition. He was also a founding member of the Canadian Association on Gerontology and a member of the executive of the Alberta Council on Aging. In 1967, he gave what was then a rarity—a course in the psychology of aging.<sup>107</sup> When Don Kline was hired in 1986 he brought to the department further expertise in aging, particularly in the form of research on aging and vision. Among his many research accomplishments are a number of studies that aimed to ameliorate the impact of age-related visual loss on the performance of real-world tasks.<sup>108</sup> He also collaborated with others in the department, including Charles (“Chip”) Scialfa, on problems associated with aging and vision.<sup>109</sup> In 1989 Candace Konnert joined the department and established a research program on vulnerable populations, including those in long-term care and the elderly in nursing homes.<sup>110</sup> Long-time department member Elzbieta B. Slawinski (1938–2009) also contributed to sensory research in the elderly, but this time in audition.<sup>111</sup> This included work on hearing problems in daily life.<sup>112</sup>

Keith Dobson’s research has also touched on numerous health-related problems over the years, but perhaps particularly through his role as principal investigator on the Mental Health Commission of Canada’s Opening Minds program. This program addresses the issue of stigma related to mental disorders, and Dobson’s emphasis is on stigma in the workplace. His work has led to innovative programs being used across the country and internationally. As a recognized authority on cognitive behavioural therapies, he has recently been influential in founding the World Confederation of Behavioral and Cognitive Therapies. At home, he is a member of the Canadian Depression Research and Intervention Network. With complementary research interests in anti-stigma programs, Andrew Szeto is associate professor in the department; he was appointed director of the Campus Mental Health Strategy for the University of Calgary in 2016.<sup>113</sup>

In 1986, Jos Eggermont arrived from Radboud University in the Netherlands as an Alberta Heritage Foundation for Medical Research Scholar.<sup>114</sup> He was encouraged by then department head Don Jamieson, whose research on speech perception was well known.<sup>115</sup> Already well established as an audiology researcher with an international reputation, Jos Eggermont ran a productive laboratory in the Department of Psychology, which he maintained until his retirement in 2013. In 1997, he was appointed to the Campbell McLaurin Chair for Hearing Deficiencies in the Faculty of Medicine (Department of Physiology and Biophysics), although he remained a full member of the Department of Psychology. Among his many accomplishments, he pioneered the recording of activity from the cochlea and auditory nerve in humans. He was instrumental in optimizing the diagnostics of tumours of the auditory nerve using the auditory brainstem response, and was the first to study the effects of total deafness in children on the maturation delay of auditory cortical processing once they were fitted with a cochlear implant.<sup>116</sup> In 2004 Jos Eggermont and colleagues were the first to combine 64- and 128-channel EEG recording with simultaneous functional MRI in auditory research.<sup>117</sup>

David Hodgins, former director of the clinical program and department head, is the coordinator of the Alberta Gaming Research Institute, University of Calgary Node. He has broad interests in the field of addictions, including alcohol and gambling, and the process of recovery through brief motivational interventions. Building on this health focus, Dan McGrath holds an Alberta Gambling Research Institute Chair and pursues research on the behavioural pharmacology of addiction and disordered gambling.<sup>118</sup>

Susan Graham, former director of the clinical program, is now director of the Owerko Centre at the Alberta Children's Hospital Research Institute. The centre supports University of Calgary researchers from a variety of disciplines in the study of neurodevelopmental disorders and child mental health. Graham's primary research interests are in language and cognitive development in the early years of life.

In addition, there have been, and are, many members of the department whose basic research is directly relevant to health and medicine but does not involve any actual contact with patients. This includes, for example, the work of Richard Dyck, who conducts studies on the molecules and mechanisms responsible for mediating experience-dependent plasticity in

the cerebral cortex in animals.<sup>119</sup> Or the work of Campbell (“Cam”) Teskey, who studies animal models of epilepsy and seizure disorders and was a member of the department from 1992 until 2008, when he moved to the Department of Cell Biology and Anatomy. As well, Michael (“Mike”) Antle studies the mammalian circadian system.<sup>120</sup> A number of other faculty also work on projects directly or indirectly related to medicine and health, as is the case in many research-intensive psychology departments. Many faculty members also rely on medical and health-related research funds, and publish widely in health-related fields. Furthermore, besides those department members already mentioned, who hold leadership positions in the various health-related research institutes and research centres, many faculty are affiliated with the Alberta Children’s Hospital Research Institute, as well as the Hotchkiss Brain Institute and the Mathison Centre for Mental Health Research and Education, both of which are located in the Cumming School of Medicine.<sup>121</sup> Unfortunately, we cannot mention all of them. Needless to say, these connections reflect the growing multi-disciplinarity of health research.

The department’s transformation, from the three-person unit that formed the first Department of Psychology in 1962 to its current form, could not be more pronounced. Having maintained a stable workforce for about twenty years, despite many periods of retrenchment in the university, the department is now more productive, younger, and more dynamic than ever. This is due certainly to the foundation that the first generation of faculty provided the department, with its steadfast focus on research, teaching, and professional training. But it is also due to the presence of a medical school. The University of Calgary is typical of postwar institutions, save for this one fact. Of the almost two dozen new universities founded in Canada after the Second World War, only two actually had medical schools shortly after their founding, the University of Calgary and Memorial University in Newfoundland.<sup>122</sup> And the University of Calgary’s medical school and its associated research institutes and centres have become a major part of the university’s operations. They have drawn many academics over the years, including psychologists and other social scientists. The building of the Alberta Children’s Hospital, the largest public hospital for sick children in Canada, has also had a major impact on developmental and pediatric research possibilities for psychologists affiliated with the hospital or its institutes. The Department of Psychology’s

contributions to Albertans' health was made possible in part by the presences of the hospitals and their associated research facilities. And while such advances are a sign that the department is solidly established within collaborative and interdisciplinary research, it has also led to the view that psychology's autonomy is under threat by critics of the entrepreneurial advances of psychology into health and medicine. Yet that is a tension that psychologists have long lived with.

## NOTES

We are grateful for the assistance of the University of Calgary Archives, especially Karen Buckley, and to professors emeriti of the Department of Psychology, including Don Bakal, Charles Costello, Robert Dewar, Jos Eggermont, Don Kline, Tim Rogers, and Robert Sainsbury. We also thank the many current members of the department who helped in various ways, too numerous to list here (but you know who you are!).

- 1 Henderikus Stam, "A Critical History of Health Psychology and its Relationship to Biomedicine," in *Critical Health Psychology*, 2nd ed., ed. Michael Murray (London: Palgrave Macmillan, 2014), 19–35.
- 2 For comparison, see the discussions regarding a clinical psychology program (1972), in Department of Educational Psychology, Werklund School of Education Fonds—General (1961–1981). From University of Calgary Archives: CAACU ARC F0221-S0009-FL0065, as well as in chapter 3 by Diana Mansell.
- 3 William R. N. Blair, *Mental Health in Alberta* (Edmonton: Queen's Printer, 1973), 2: 165.
- 4 There is at least one reference in the university archives to the department's official institutional founding in 1963. That was likely due to the fact that 1963 is the year when the Faculty of Arts and Science was instituted with departments and department heads.
- 5 Blossom T. Wigdor, "In Memoriam—A. E. David Schonfield (1920–1995)," *Canadian Journal on Aging* 15, no. 1 (1996): i–iv.
- 6 Antony W. Rasporich, "A Community in Search of a University—The University of Calgary's Pre-History, 1912–66," *Alberta History* 53, no. 2 (2006): 1–10.
- 7 William R. N. Blair, *Mental Health in Alberta: A Report on the Alberta Mental Health Study, 1968*, vol. 1 (Edmonton: Human Resources Research and Development Executive Council—Government of Alberta, 1969).
- 8 See also, Jeanne L. Pettifor, "William Robert Nelson (Buck) Blair 1915–1990," *Canadian Psychology/Psychologie canadienne* 32, no. 2 (1991): 184.
- 9 Blair, *Mental Health in Alberta: A Report on the Alberta Mental Health Study, 1968*. Two vols.
- 10 For comparison, see Ernest C. Manning, *Political Realignment: A Challenge to Thoughtful Canadians* (Toronto: McClelland and Stewart, 1967), 44–94.

- 11 Blair, *Mental Health in Alberta*, 1: 5.
- 12 Ibid.
- 13 Ibid., 1.
- 14 Manning, *Political Realignment*, 44–94.
- 15 James S. Tyhurst, Francis Cyril Rhodes Chalk, F. Sam Lawson, Burdett H. McNeel, Charles A. Roberts, George C. Taylor, Robert J. Weil, and J. D. M. (Jack) Griffin, *More for the Mind: A Study of Psychiatric Services in Canada* (Toronto: The Canadian Mental Health Association, 1963).
- 16 James Moran and David Wright, eds., *Mental Health and Canadian Society: Historical Perspectives*. (Montreal and Kingston: McGill-Queens University Press, 2006), 193–221.
- 17 Ibid., 193–8.
- 18 Ibid., 42.
- 19 Katherine Fierlbeck, *Health Care in Canada: A Citizen's Guide to Policy and Politics* (Toronto: University of Toronto Press, 2011), 196–218.
- 20 See Blair, *Mental Health in Alberta*, vol. 1.
- 21 The government is not entirely to blame. There are master's-level psychologists in the province who have long resisted the call for increasing the educational standards for registered psychologists.
- 22 Blair, *Mental Health in Alberta*, 2: 30–4.
- 23 Ibid.
- 24 Ibid., 165.
- 25 Ibid., 166.
- 26 Ibid.
- 27 This is a common practice in North American universities.
- 28 Blair, *Mental Health in Alberta*, 2: 166.
- 29 Ibid.
- 30 See also exchanges regarding “optimum development” in students (1972 and after) with the Curriculum Planning Committee—Special Education, Werklund School of Education Fonds—General (1972–1975), University of Calgary Archives: CA ACU ARC F0221-S0221-S0007-FL0013.
- 31 Blair, *Mental Health in Alberta*, 2: 159.
- 32 Frank W. Stahnisch and Erna Kurbegović, eds., *Psychiatry and the Legacies of Eugenics: Historical Perspectives on Alberta and Beyond, 1905-1972* (Edmonton: Athabasca University Press, forthcoming 2020).
- 33 Henderikus J. Stam and Ashley Barlow, “John M. MacEachran (1877–1971) and Eugenics in Alberta: Victorian Sensibilities, Idealist Philosophy, and Detached Efficiency,” in Stahnisch and Kurbegović, *Exploring the Relationship of Eugenics and Psychiatry*, ch. 2.

- 34 Blair, *Mental Health in Alberta*, 1: 269.
- 35 See for example Erika Dyck, *Facing Eugenics: Reproduction, Sterilization, and the Politics of Choice* (Toronto: University of Toronto Press, 2013).
- 36 Ibid.; see also Erin L. Mos, Henderikus J. Stam, and Diane Kattevilder, "From Suffrage to Sterilization: Eugenics and the Women's Movement in 20th Century Alberta," *Canadian Psychology* 54, no. 2 (2013): 105–14.
- 37 Department of Psychology, *A Submission to the Faculty of Graduate Studies from the Department of Psychology* (Calgary: University of Calgary Department of Psychology, 1966), 1.
- 38 Ibid., 5.
- 39 It should be noted that the department has complained to the university administration about the lack of space for research facilities ever since.
- 40 Now called the Vecova Centre for Disability Services and Research.
- 41 See for example Department of Psychology, "Meeting Minutes" (University of Calgary, 20 September 1988).
- 42 Richard Sigurdson, ed., *Annual Report 2015–2016, Faculty of Arts* (Calgary: University of Calgary, 2017), 15–22.
- 43 For comparison, see Wade E. Pickwren, *Psychology and the National Institute of Mental Health: Historical Analysis of Science, Practice, and Policy* (Washington, DC: National Institutes of Health, 2004).
- 44 See for example Wade Pickren and Silvia Degni, "A History of the Development of Health Psychology," in *The Oxford Handbook of Health Psychology*, ed. Howard S. Friedman (Oxford: Oxford University Press, 2011), 15–41; Judith Rodin and George C. Stone, "Historical Highlights in the Emergence of the Field," in *Health Psychology: A Discipline and a Profession*, eds. George C. Stone, Stephen M. Weiss, Joseph D. Matarazzo, Neal E. Miller, Judith Rodin, Cynthia D. Belar, Michael J. Follick, and Jerome E. Singer (Chicago: University of Chicago Press, 1987), 15–26.
- 45 Kurt Danziger, *Constructing the Subject: Historical Origins of Psychological Research* (Cambridge: Cambridge University Press, 1990).
- 46 David E. Leary, "Telling Likely Stories: The Rhetoric of the New Psychology," *Journal of the History of the Behavioral Sciences* 23, no. 4 (1987): 315–31.
- 47 See Danziger, *Constructing the Subject*; James Capshew, *Psychologists on the March: Science, Practice and Professional Identity in America, 1929–1969* (Cambridge: Cambridge University Press, 1999).
- 48 See Henderikus J. Stam, "A Critical History of Health Psychology and its Relationship to Biomedicine," in *Critical Health Psychology*, 2nd ed., ed. Michael Murray (London: Palgrave, 2014), 19–35.
- 49 Ibid.
- 50 Courtney Chasin and Henderikus J. Stam, "The Feminization of Psychology: Changing Patterns in Alberta," *Symposium* 18, no. 1 (2008): 80–2; Ilene J. Philipson, *On the*

- Shoulders of Women: The Feminization of Psychotherapy* (New York: Guilford Press, 2003).
- 51 Ibid.
  - 52 June Adam, *A Profile of Women in Canadian Universities* (Ottawa: Association of Universities and Colleges of Canada, 1971).
  - 53 Ibid., 5.
  - 54 Chasin and Stam, "The Feminization of Psychology," 81.
  - 55 Joseph D. Matarazzo, "Behavioral Health and Behavioral Medicine: Frontiers for a New Health Psychology," *American Psychologist* 35, no. 9 (1980): 807–17.
  - 56 Henderikus J. Stam, "Theorizing Health and Illness: Functionalism, Subjectivity and Reflexivity," *Journal of Health Psychology* 5, no. 3 (2000): 273–83.
  - 57 For comparison, see Lois Holzman, "Critical Psychology, Philosophy, and Social Therapy," *Human Studies* 36, no. 4 (2013), 471–89.
  - 58 Jacalyn Duffin, "The Guru and the Godfather: Henry Sigerist, Hugh MacLean, and the Politics of Health Care Reform in 1940s Canada," *Canadian Bulletin of Medical History* 9, no. 2 (1992): 191–218.
  - 59 See Erika Dyck, "Flashback: Psychiatric Experimentation with LSD in Historical Perspective," *Canadian Journal of Psychiatry* 50, no. 7 (2005): 381–7; John A. Mills, "Lessons from the Periphery: Psychiatry in Saskatchewan, Canada, 1944–1968," *History of Psychiatry* 18, no. 2 (2007): 179–201.
  - 60 Charles G. Costello, "Lysergic Acid Diethylamide (LSD 25) and Behaviour Therapy," *Behaviour Research and Therapy* 2 (1964): 117–29.
  - 61 Park Davidson and his wife died tragically in a car accident on 21 December 1980. Ken Craig, "Park O. Davidson—Obituary," *Child Behavior Therapy* 3, no. 2–3 (2008): 103–4.
  - 62 Hans Eysenck, *Psychology and the Foundations of Psychiatry* (London: H. K. Lewis, 1955).
  - 63 For comparison, see Thomas A. Leahey, *A History of Psychology: From Antiquity to Modernity*, 3rd ed. (London: Pearson, 2012), 242–52.
  - 64 Peter Gay, *Freud: A Life for Our Time* (New York: Norton, 1987).
  - 65 See for example Ludy T. Benjamin, Jr., "A History of Clinical Psychology as a Profession in America (and a Glimpse at its Future)," *Annual Review of Clinical Psychology* 1 (2005): 1–30.
  - 66 Ibid.
  - 67 Capshew, *Psychologists on the March*.
  - 68 Benjamin, "A History of Clinical Psychology."
  - 69 Capshew, *Psychologists on the March*.
  - 70 Benjamin, "A History of Clinical Psychology."
  - 71 See for example Robert L. Woolfolk and Frank C. Richardson, "Behavior Therapy and the Ideology of Modernity," *American Psychologist* 39, no. 7 (1984): 777–86.

- 72 Leahey, *A History of Psychology*, 229–35.
- 73 Division of Applied Psychology Fonds (1964–2008), University of Calgary Archives: CA ACU ARC F0150.
- 74 Wigdor, “In Memoriam—A. E. David Schonfield,” i–iv.
- 75 Department of Psychology, “Meeting Minutes” (University of Calgary, 12 June 1972).
- 76 Department of Psychology, “Meeting Minutes” (University of Calgary, 1 June 1972).
- 77 Emery and Kneebon, “Socialists, Populists, Resources and the Divergent Development of Alberta and Saskatchewan,” 419–40.
- 78 Ibid.
- 79 Department of Psychology, “Meeting Minutes” (University of Calgary, 1 June 1972).
- 80 Timothy B. Rogers, personal communication, 15 February 2016.
- 81 Craig, “Park O. Davidson—Obituary,” 103–4.
- 82 Rasporich, *Make No Small Plans*, 42–5.
- 83 Department of Psychology, “Meeting Minutes” (University of Calgary, 12 September 1978).
- 84 Ibid.
- 85 For comparison, see discussions regarding a clinical psychology program (1979), in Department of Educational Psychology, Werklund School of Education Fonds—General (196–1981), University of Calgary Archives: CAACU ARC F0221-S0009-FL0065.
- 86 Department of Psychology, “Meeting Minutes” (University of Calgary, 8 March 1979).
- 87 Department of Psychology, “Meeting Minutes” (University of Calgary, 28 May 1980).
- 88 An external institute was a potential draw on resources, such as positions.
- 89 Department of Psychology, “Meeting Minutes” (University of Calgary, 29 October 1985).
- 90 Department of Psychology, “Meeting Minutes” (University of Calgary, 20 September 1988).
- 91 It was likely a false rumour. The University of Alberta’s Department of Psychology apparently voted not to develop a clinical psychology program soon thereafter—but this, too, was a rumour circulating in the Department of Psychology at the University of Calgary, as the authors recall.
- 92 Department of Psychology, “Meeting Minutes” (University of Calgary, 20 September 1988).
- 93 Stam was a member of the first Graduate Admissions Committee and this is based on his recollections as well as an interview with Keith Dobson, 15 April 2017.
- 94 Keith Dobson, interview with author, 15 April 2017.
- 95 In return, the Department of Educational Psychology received a faculty position.



- 96 Canadian Psychological Association, "Self-Study Application," CPA Accreditation Panel for Doctoral Programs, University of Calgary Department of Psychology, 15 September 2016.
- 97 Now Alberta Health Services, formerly Calgary Regional Health Authority.
- 98 Canadian Psychological Association, "Self-Study Application."
- 99 See for example Vina Goghari and Martin Harrow, "Twenty Year Multi-Follow-up of Different Types of Hallucinations in Schizophrenia, Schizoaffective Disorder, Bipolar Disorder, and Depression," *Schizophrenia Research* 176, no. 2–3 (2016): 371–7. Vina Goghari moved to the University of Toronto in 2016.
- 100 See for example Lianne M. Tomfohr, Kate M. Edwards, Joshua W. Madsen, and Paul J. Mills, "Social Support Moderates the Relationship between Sleep and Inflammation in a Population at High Risk for Developing Cardiovascular Disease," *Psychophysiology* 52, no. 12 (2015): 1689–97.
- 101 See for example Keith O. Yeates, Erin D. Bigler, Tracy Abildskov, Maureen Dennis, Cynthia A. Gerhardt, Kathryn Vannatta, Kenneth H. Rubin, Terry Stancin, and H. Gerry Taylor, "Social Competence in Pediatric Traumatic Brain Injury: From Brain to Behavior," *Clinical Psychological Science* 2, no. 1 (2014): 97–107.
- 102 For comparison, see Sheri Madigan, Mark Wade, Andre Plamondon, and Jennifer Jenkins, "Maternal Abuse History, Depression, and Parenting: Links with Preschoolers Internalizing Problems," *Infant Mental Health Journal* 36, no. 2 (2015): 146–55.
- 103 See for example Melanie Noel, "Harnessing the Fragility of Pain Memories to Help Children Forget: A New Avenue for Pediatric Psychology Interventions?" *Journal of Pediatric Psychology* 41, no. 2 (2016): 232–4.
- 104 Donald A. Bakal, *Psychology and Medicine: Psychobiological Dimensions of Health and Illness* (New York: Routledge, 1979).
- 105 Donald A. Bakal, *The Psychobiology of Chronic Headache* (New York: Springer, 1982).
- 106 See for example Codie R. Rouleau, Kristin J. Horsley, Erin Morse, Sandeep Aggarwal, Simon L. Bacon, and Tavis S. Campbell, "The Association Between Insomnia Symptoms and Mood Changes During Exercise Among Patients Enrolled in Cardiac Rehabilitation," *Journal of Cardiopulmonary Rehabilitation and Prevention* 35, no. 6 (2015): 409–16.
- 107 Wigdor, "In Memoriam—A. E. David Schonfield," i–iv.
- 108 See for example Donald W. Kline, "Aging Eyes: Light, Health and Well-being," *Proceedings of the IES Symposium Proceedings on Light & Seniors Research* (Washington, DC: Illuminating Engineering Society, 2012).
- 109 See for example Charles T. Scialfa and Donald W. Kline, "Aging Effects on Vision" in *Encyclopedia of Gerontology*, 2nd ed., ed. James E. Birren (New York: Elsevier Science, 2007), 653–60.
- 110 See for example Candace Konnert and Anna Petrovic-Poljak, "Barriers to Mental Health Care Utilization," in *Oxford Handbook of Clinical Geropsychology*, ed. Nancy A. Pachana and Ken Laidlaw (Oxford: Oxford University Press, 2014), 949–69.

- 111 See for example Jane F. MacNeil and Elzbieta B. Slawinski, "Age-related Aspects of the Processing of Emotional Language and Detection of a Vehicular Warning Sound: A Preliminary Investigation," *Canadian Acoustics* 30 (2002): 138–9.
- 112 See for example Elzbieta B. Slawinski, Diana M. Hartel, and Donald W. Kline, "Self-reported Hearing Problems in Daily Life throughout Adulthood," *Psychology and Aging* 8, no. 4 (1993): 552–61.
- 113 Tina Shygan, "Grant Applications Open for On-Campus Mental Health Initiatives," *The Gauntlet* 44, no. 4 (2018): 3.
- 114 He would go on to be an Alberta Heritage Foundation for Medical Research Scientist and then an AHFMR Senior Scientist.
- 115 Don Jamieson moved to the University of Western Ontario in 1987.
- 116 Curtis W. Ponton and Jos J. Eggermont, "Of Kittens and Kids: Altered Cortical Maturation Following Profound Deafness and Cochlear Implant Use," *Audiology & Neurotology* 6, no. 6 (2001): 363–80.
- 117 Carrie J. Scarff, Angela Reynolds, Bradley G. Goodyear, Curtis W. Ponton, Joseph C. Dort, and Jos J. Eggermont, "Simultaneous 3-T fMRI and High-density Recording of Human Auditory Evoked Potentials," *Neuroimage* 23, no. 3 (2004): 1129–42.
- 118 Rhys Stevens, "Building Research Capacity in the Field of Gambling in Alberta," *Gambling Research Reveals* 7, no. 5 (2008): 1–4, esp. 1.
- 119 See for example Craig E. Brown and Richard H. Dyck, "Rapid, Experience-Dependent Changes in Levels of Synaptic Zinc in Primary Somatosensory Cortex of the Adult Mouse," *Journal of Neuroscience* 22, no. 2 (2002): 2617–25.
- 120 For comparison, see Victoria W. Smith, Ryan T. Jeffers, Brendan B. McAllister, Priyoneel Basu, Richard H. Dyck, and Michael C. Antle, "Effects of Lighting Condition on Circadian Behavior in 5-HT1A Receptor Knockout Mice," *Physiology and Behavior* 139, no. 1 (2015): 136–44.
- 121 See for example Connor Sweazey, "The History of the Hotchkiss Brain Institute—Its First Ten Years as a Centre for Neurological and Mental Health at the University of Calgary," in *Proceedings of the 25th History of Medicine Days Conference (2016) at the University of Calgary, AB*, ed. Lesley Bolton, Fedir Razumenko, and Frank W. Stahnisch (Newcastle upon Tyne, UK: Cambridge Scholars Publishing, forthcoming).
- 122 Sheila L. Duff and David G. Fish, "Medical Education: Medical Students in Canadian Universities: Report of Statistics, 1966–67," *Canadian Medical Education Journal* 96, no. 13 (1967): 921–6.

## The “Then” and “Now”: From Physical Education to Kinesiology at the University of Calgary

*Patricia K. Doyle-Baker*

### Introduction

Often a timeline of milestones is used to review history captured through snapshots or videos taken over time. The so called *then* and *now* images. Certainly, the Faculty of Physical Education (*then*) and the Faculty of Kinesiology (*now*) has had several building changes, upgrades, and expansions, which have been documented through many photographs—most recently in the coffee-table book produced for the twenty-fifth anniversary of the Olympic Oval in 2013,<sup>1</sup> and earlier in the spiral-bound year-book produced by the Faculty of Physical Education in celebration of the University of Calgary’s twenty-fifth anniversary in 1991.<sup>2</sup> There are also a few videos, such as the one prepared for the twenty-fifth anniversary of the Human Performance Lab (HPL) in 2006.<sup>3</sup> However, the change that has taken place inside these buildings is transformational, because, as the faculty changed, so did the worldview and lexicon associated with physical education.<sup>4</sup> The story that promoted change or reform, as some might say, has deep roots, and part of the outcome was a sense of accountability and a commitment to health and wellness.<sup>5</sup>

The method used to tell this story falls within an unorthodox approach to writing where fact and narrative are used. Admittedly, the lens adopted for this chapter is one that treads between the lines of an academic as a doctor of public health, a knowledge-translation writer, and an exercise advocate. Credit does go to a few faculty and staff who were able to provide background material that included office documents pulled from filing cabinets. The *Annual Reports* from the HPL were a source of information on how the faculty research developed and flourished from 1981 to 2015. The *Annual Reports* also provided a view of how health outcomes have become so important over time. Some of these reports (namely, those from 1999 to 2014) are available online.<sup>6</sup> Reference material from known peer-reviewed articles provided the backbone for understanding this story of transformation from physical education to kinesiology over a fifty-year period.

Our curriculum, community, and research has been driven by the World Health Organization's definition of healthy living, first articulated in 1948.<sup>7</sup> In the following discussion I will argue that progress in our degree program over the years occurred in a conscious, intentional, and strategic way. I will then draw upon changes in the faculty and how they mirror a J-curve relationship, loosely perhaps, in which exercise has gained some distance from the negative images with which it was at one point associated (i.e., myths such as “no pain, no gain,” and confusion around weight loss and supplements) and has become more central to kinesiology, the medical community, and public health.

## Begin with the End in Mind

The ancient Greek philosopher and naturalist Aristotle (384–422 BCE) believed that sports and gymnastics were essential to the development of the human body and to optimize functional and physiological capacity. Health-care practices, including the future fields of “athletic therapy” and “health promotion,” were part of the ancient Olympic Games. During the games, specialist services were provided by instructors called *paidotritvai*, which loosely translates as “trainers,” who took care of the athletes when they were injured and provided nutritional guidance to improve performance.<sup>8</sup> The kinesiology curriculum encompasses the foundations described above, as well as athletic training, biomechanics, coaching,

environmental physiology, exercise physiology, health physiology, nutrition, sport-and-health psychology, and sport medicine.<sup>9</sup>

## Laws of Health and Lifestyle Medicine

Later, another Greek physician, Galen (c. 129–c. 216), emerged, practising in Rome, and revisited Hippocrates's (c. 460–c. 377 BCE) ideas enhancing the current thinking at the time about health and scientific hygiene. Today this area might be considered “applied” exercise physiology, which Galen taught and practised as the “laws of health.” These are described as follows: breathe fresh air, eat proper foods, drink the right beverages, exercise, get adequate sleep, have a daily bowel movement, and control one's emotions.<sup>10</sup> This sage advice mirrors today's recommendations for achieving and maintaining a healthy lifestyle,<sup>11</sup> and it provides the foundation for several courses, but in particular for the U of C Faculty of Kinesiology, Kinesiology 433: Health and Physical Activity.<sup>12</sup>

Many of the faculty's undergraduate students have successfully entered medical school with strong ideals that extend to transforming the practice of medicine through lifestyle approaches. To the best of the author's knowledge this has not been documented with our kinesiology students after they became physicians. There is, however, general research that examines how lifestyle is used in physicians' practices in the context of primary prevention.<sup>13</sup> Indeed, our modern-day social behaviours, such as physical inactivity and unhealthy eating, are both major drivers of death, disease, and health-care costs.<sup>14</sup> A case could therefore be made that this proactive view aligns with the Provincial Wellness Strategy developed for Albertans, which is designed to specifically strengthen public health and healthy living.<sup>15</sup>

## Who Knew Galen Could be so Right—Such a Long Time Ago?

Many historians suggest that Galen deserves recognition as the most well-known and influential physician that ever lived.<sup>16</sup> Galen's insightful findings would fit well with the contemporary emphasis on vigorous physical activity as a component of public health. The current guidelines from the US Department of Health and Human Services and the

Canadian Physical Activity Guidelines recommend doing at least 150 minutes of moderate-intensity exercise or 75 minutes of vigorous exercise each week.<sup>17</sup> This is based on research demonstrating that vigorous exercise burns about twice as many calories per minute when compared to moderate exercise. High-intensity interval training sessions—commonly called “HIIT” workouts—involve repeated bouts of high-intensity effort followed by varied recovery times.<sup>18</sup> There have been many research studies investigating this concept in both the healthy and those with chronic disease. The results have demonstrated positive outcomes with greater reductions in body weight and heart rate for individuals, for example, who have been diagnosed with coronary artery disease.<sup>19</sup>

Galen was also a physician to the gladiators (likely the first in sports medicine). He treated ruptured tendons and muscles using surgical procedures he invented, and recommended rehabilitation therapies and exercise regimens. Similarly, the Sport Medicine Clinic in the faculty is a full-service clinic that combines orthopedic surgeons and sport medicine physicians with athletic and physical therapists.<sup>20</sup>

## Circling Back to Exercise is Medicine

Today, we are moving again in the right direction with the global health initiative managed by the American College of Sports Medicine (ACSM) called Exercise is Medicine® (EIM).<sup>21</sup> This initiative is focused on encouraging primary-care physicians and other health-care providers to include physical activity when designing treatment plans for patients. The Canadian Society for Exercise Physiology (CSEP) is the leading host organization for Exercise is Medicine® Canada (EIMC). Both the ACSM and the Canadian Society of Exercise Physiology are committed to the belief that physical activity is integral to the prevention and treatment of diseases and should be regularly assessed and “treated” as part of all health care in Canada.<sup>22</sup> Many colleges and universities have taken up this cause, including the University of Calgary.<sup>23</sup>

Interestingly, the emerging fields of physical education and exercise were developed primarily to promote physical and mental health in both everyday life and in sporting performances.<sup>24</sup> In recent decades, this area has been approached somewhat cautiously as the body of research on the impacts of physical activity upon mental health have taken time to

develop. There is a growing interest in the effectiveness of exercise interventions for improving mental as well as physical health in individuals with mental disorders.<sup>25</sup> There is also mounting evidence that exercise results in increased brain health<sup>26</sup> and improved profiles for markers of cellular aging.<sup>27</sup> It would seem that the health benefits of regular exercise on the mind, body, and longevity are difficult to ignore today.

In summary, the use of exercise and physical activity to achieve health has clear roots in ancient medical practice, providing ample focus for a faculty of physical education. This overview clearly lays the foundation for the intersection of kinesiology and public health, which includes scientific-based solutions to improve health through physical activity and exercise.

## From Physical Education to Kinesiology

In 1945 Lou Goodwin (“Dr. Lou”; 1914–97) of the University of Alberta at Calgary, who was an instrumental leader in the development of the Western Canadian Intercollegiate Athletic Association—he had served as its secretary and later its president—was appointed as the first civilian physical training instructor for the University of Calgary. He later became the first head of the School of Physical Education,<sup>28</sup> and during the early 1960s games and sports became central to the physical education curriculum. As well, relationships were forged between intramural, interscholastic, and intercollegiate sports.

The Physical Education Building was officially opened 22 March 1962 and a new two-year education program was established as part of the bachelor of physical education degree. The School of Physical Education, formerly part of the University of Alberta, Calgary Branch, became autonomous in 1966. Five years later, a \$2 million expansion of the building was completed that included the pool, racquet courts, laboratories, and offices. Dr. Don Newton (1932–2019), the acting dean of the School of Physical Education, sent a short congratulatory memo to the faculty and staff on 13 February 1975 after the General Faculty Council gave formal approval for the Faculty of Physical Education.<sup>29</sup>

Fast-forward to the Faculty of Kinesiology’s homecoming reception, held on 8 September 2006, where numerous alumni returned to celebrate the University of Calgary’s fortieth anniversary.<sup>30</sup> Dr. Bev Sandalack, a

former physical education graduate and now a professor and associate dean in the Faculty of Environmental Design, recalls that

the Phys Ed degree was a good liberal arts undergrad degree, with some solid science courses, opportunities for electives in the humanities, and a chance to develop as an athlete and as a coach.<sup>31</sup>

## The Academic Program

During these early years the faculty offered a three-year undergraduate and a four-year bachelor of physical education (BPE) honours degree. The BPE had four routes of specialization: general adolescent (secondary-school physical education), pre-adolescent (elementary-school physical education), outdoor pursuits, and dance education. The master's of physical education specialized in the art and science of coaching, and further specialization in fitness began in the fall of 1989.

## “Change was in the Air”

Since the beginning of physical education as a professional field and scholarly discipline in the late 1800s, the liberal arts and social sciences constituted key components of a holistic vision of the human body and education in its physical aspect.<sup>32</sup> In the late 1960s and early '70s, partly in response to a rising research culture in the field, a number of sub-fields arose within physical education that included sport philosophy, sport history, sport sociology, and the comparative study of physical education and sport. There was also a move to bring about a “scientization” of physical education:<sup>33</sup>

Since [the] inception the [of] School of Physical Education in 1966, the character of the Faculty has evolved from a singular concern with professional preparation towards an increasing concern for successfully accommodating both a professional and a disciplinary orientation in studying and communicating physical education. This evolution in character within the Faculty of Physical Education has moved the faculty to



a mid-range position within the general trend occurring at many similar institutions and in the total field of physical education. The field of physical education is a dynamic state with a welter of viewpoints and forces challenging the nomenclature, nature and boundaries of previous conceptualization of the field.<sup>34</sup>

In 1978, the Faculty of Physical Education welcomed a new dean, Dr. Roger Jackson (b. 1942). Dr. Jackson has recalled how, during his interview for the position, the then vice-president, Peter Kruger, indicated that the faculty had a good teaching program but he wanted to see research and scholarship take off *now*. The faculty indicated that they needed new facilities, a graduate program, and better relationships with the “senior brass” across campus.<sup>35</sup> When Dr. Jackson stepped down after a decade as dean, he recalled that all of these goals were achieved with the help of the 1988 Winter Olympic Games.<sup>36</sup> During this decade the faculty grew at an unprecedented rate, both academically and physically, to the point where it was recognized, according to physician Dr. Warren Veale—Dr. Jackson’s successor as dean—“as one of the most outstanding faculties in Canada.”<sup>37</sup>

## Human Performance Lab

The HPL can be seen as a multi-disciplinary research centre that focuses on longevity and mobility by investigating anatomical, biological, biomechanical, neuromotor control, and physiological processes and phenomena. The first comprehensive course of study at the undergraduate level in physical education in North America was offered at Harvard University in 1893. The four-year program was housed in the Department of Anatomy, Physiology, and Physical Training at Lawrence Scientific School in Cambridge, Massachusetts. Along with a very strong science core there was an exercise physiology laboratory. Many exercise physiology textbooks speak to this historical contribution, and the following quotation is often highlighted:

A well-equipped laboratory has been organized for the experimental study of the physiology of exercise. The object of this work is to exemplify the hygiene of muscles, the conditions

under which they act, the relation of their action to the body as a whole affecting the supply and general hygienic conditions, and the effects of various exercises on muscular growth and general health.<sup>38</sup>

## Eighty-Eight Years Later—A Shared Vision

The Centre for Human Performance Studies at the University of Calgary began eighty-eight years later after the first physical education program in the United States, when Dr. Jackson recruited Dr. Benno M. Nigg (b. 1938) in 1981. Dr. Nigg was already established as an experienced biomechanics researcher at the Eidgenössische Technische Hochschule in Zurich, Switzerland, one of the top universities in the world. When he arrived at the University of Calgary there was only the one building and a dilapidated hockey rink. Dr. Nigg was nonetheless attracted to the shared vision of what the centre could be, and the freedom to move, build, and create.<sup>39</sup> At his retirement party he reminisced with the following statements:

There was a fantastic idea, but in reality, there was nothing there—a lab that was just an old locker room. Shoddy. There was no equipment here. There were no researchers there, so in that sense, there was nothing that could attract. But there were some great ideas.<sup>40</sup>

Dr. Nigg brought together many researchers from a variety of fields and he focused on developing an interdisciplinary laboratory. As he has explained:

The key was not to create a building, it was to create a research community where regardless of your health or human performance question, there is likely someone working in the building who has the answers.<sup>41</sup>

The first *Annual Report* produced by the Centre for Human Performance Studies was published in 1981 and included 11 names, a single PhD student, 4 journal articles, and the word “health” was not mentioned at all.<sup>42</sup> The *Annual Report* in 2001 then listed about 60 “principal members”

(faculty, post-doctoral fellows, PhD students, technical support staff, and administrative assistants and managers) and about the same number of “apprentices” (master’s students, undergraduate students, visiting students, volunteers and visitors, many of them working in the HPL on a part-time basis);<sup>43</sup> 40 journal articles were included, and the word “health” was now mentioned 6 times.<sup>44</sup> By way of comparison, the 2015 *Annual Report* lists 243 members and apprentices, with 158 journal articles, and the word “health” received 58 entries.<sup>45</sup> It is important to highlight health as we should practise what we preach in kinesiology. Physical activity is seen now as “one of the easiest and most cost-effective ways to achieve the objective of having a healthier population, *physically and mentally*.”<sup>46</sup> There is a clear need to examine population health indicators,<sup>47</sup> in particular physical activity and inactivity levels, weight, and related conditions across Canada, as well as on a local level.

## The Olympics and the Start of Something Bigger

Calgary was awarded the 1988 Winter Olympic Games, and this resulted in opportunities for research and an expansion into new facilities with state-of-the-art equipment, as mentioned earlier.<sup>48</sup> The HPL consisted of four discrete research groups at this time, covering biomechanics, exercise physiology and biochemistry, neuromotor control, and sports anthropology.<sup>49</sup> The biomechanics group was the largest of the four, with active research in loading of the human body, computer simulation of area movements, gate patterns of amputees, and muscle/length tension relationships. The exercise physiology group worked with high-performance athletes and monitored their blood chemistry, training, and overtraining. The neuromotor research was focused on movement patterns in skilled or unskilled individuals. Finally, the sport anthropology researchers investigated the morphological prototypes for support in the shape and the dimension of the human foot in various populations and the body composition patterns of elite athletes.<sup>50</sup> Today, the research groups in the HPL within the Roger Jackson Centre for Health and Wellness are involved in multi-disciplinary projects that fit within the strategic research themes outlined by the Faculty of Kinesiology in 2016: musculoskeletal health, injury prevention and rehabilitation, and exercise and nutrition in health and sport.

Instead of being focused around one science domain, such as biomechanics or exercise physiology or motor behaviour, areas are brought together to focus on collaborative modes with themes such as aging and physical activity, nutrition and obesity, hockey and concussion, or the promotion of physical activity in youth.

## Time for Renewal—Name Change

Choosing a new name for the faculty, one that best represented and described the research with the proposed new majors was not an easy task, though it was not unusual at the time. Many North American universities were doing the same in the late 1980s and early '90s, and a significant discourse was generated. It was recognized that a knowledge-domain and nomenclature problem existed with the name physical education.<sup>51</sup> The term “kinesiology” promoted a broad-based disciplinary, professional, and performance approach to the study of physical activity. The name also had a historical connection. According to American physical education specialist Karl M. Newell:

The encompassing nature of human physical activity lent itself naturally to kinesiology holding multiple academic agendas. Indeed, it is hard to think of a scholarly discipline or field of study that had more agendas in academe than kinesiology.<sup>52</sup>

Therein was the difficulty of fashioning a consensus, and although kinesiology appeared to be the most commonly selected name in Canada (four universities utilized that name at the time: the University of Waterloo, Simon Fraser University, the University of Saskatchewan, and the University of Calgary), the choice was not unanimous.<sup>53</sup>

The Faculty Name Change Committee (whose members were Dr. Michael R. Hawes, Dr. Patricia K. Doyle-Baker, Professor Shirley Murray, Dr. Colin Lumby, and Assistant Professor Jon Kolb) met in October 1990 and surveyed full-time faculty and support staff, research groups and laboratories. There were many factors to be considered with the naming of the faculty, and Dr. Michael Hawes, chair of the committee, prepared a list on 4 May 1994 and sent it to all faculty. Professors, instructors, and researchers alike were to consider the introduction of new programs and

degrees in the future; collaborative degree offerings; joint appointments with the Faculties of Education, Fine Arts, Medicine, and Engineering; the establishment of new research programs and centres; the expansion of research topics; and the possibility of new curriculums. The list was not meant to be exhaustive, but certainly Dr. Hawes wanted to capture the more common agendas that were important at that time. As well, Dr. Hawes emphasized that

the needs of our graduates were not being met and they have difficulty being seriously considered for jobs outside the traditional physical education realm because their academic preparation appeared to be particularly associated with the teaching of physical activities.<sup>54</sup>

After broad consultations and much discussion, the Faculty Name Change Committee recommended “Kinesiology”

because it has traditionally been associated with our field and fundamentally describes the study of movement. It is a word that is unique to our field, all-encompassing of our current practice and one which has been increasingly adopted within the University sphere. It is a single word which concisely addresses the collective field of inquiry, it does not require various qualifiers and hyphenation in order to define what we are about.<sup>55</sup>

Following the name change an intensive curriculum reorganization process took place to define the majors (athletic therapy, biomechanics, exercise and health physiology, mind sciences, leadership in pedagogy and coaching) within the bachelor of science and bachelor of kinesiology degrees:

On July 12, 1994, the Council of the Faculty of Physical Education approved a proposal to change its name from the Faculty of Physical Education to the Faculty of Kinesiology. It was determined that the name change would more accurately reflect the collective fields of inquiry within the faculty.

The proposal was sent to the University Planning Committee, which gave its approval on January 26, 1995 and forwarded it to General Faculties Council.<sup>56</sup>

Ironically, when the Faculty of Physical Education changed its name to Kinesiology, the dance program moved to the Faculty of Arts.<sup>57</sup> However, on 21 November 2013, the first Canadian five-year combined degree program offering a bachelor of arts in dance and a bachelor of kinesiology was unveiled. The program was designed to provide a strong foundation in both arts and science, with an emphasis on dance as a form of therapeutic physical activity.<sup>58</sup> Perhaps what comes around goes around.

## Undergraduate Degree of Choice

Recent enrollment growth in kinesiology places it second among academic areas of study in higher education according to a recent article entitled “The Public Face of Kinesiology in the 21st Century.”<sup>59</sup> Kinesiology has emerged as the undergraduate degree of choice for many students at the University of Calgary as well. This is supported by the change in the composition of faculty, selected research directions, and in the curriculum design of the academic programs.<sup>60</sup> Students are seeking careers in a variety of allied health and medical fields, as well as in more traditional areas such as fitness leadership, health promotion, health and physical education, recreation, and sport. The key factor in kinesiology’s unprecedented growth and increased popularity as an undergraduate degree choice has been its expanded scientific basis and its increased opportunities for professional applications. These include certifications associated with the Alberta Provincial Fitness Unit<sup>61</sup> and the Canadian Society of Exercise Physiology.<sup>62</sup>

Over the past three decades, exercise physiologists have become increasingly involved in providing exercise and health physiology services; testing, evaluation and exercise prescription in clinical environments. Exercise specialists, as they are called by Alberta Health Services,<sup>63</sup> must be certified from the Canadian Society for Exercise Physiology or the American College of Sports Medicine and carry the professional designation CSEP-CEP or ACSM-EP. Their scope of practice includes working with healthy populations as well as individuals and families who are challenged by musculoskeletal limitations and cardiovascular, pulmonary,

neuromuscular, and metabolic diseases. For example, within the clinical domain they apply the concepts of positive exercise in maintaining physiologic function to specific disease processes related to an individual's metabolic and cardiovascular profile. This population can range from children to seniors. Students at the University of Calgary can become certified exercise physiologists after completing their degree.

## The Merger in 2003

The Sport Medicine Centre, with sport medicine, clinical, and research services, has developed as a hub of intensive research programs and clinical activities since its inauguration at the U of C Faculty of Kinesiology in 1988. Officially established for the Winter Olympic Games, its primary objective was to integrate and foster comprehensive research, education, and clinical care programs in sport medicine for Calgary and Alberta. In 2003 the Sport Medicine Centre and the HPL merged into one integrated unit.<sup>64</sup> The resulting physical proximity was one reason for this change, and the second was the realization of the symbiotic research interests of the two groups,<sup>65</sup> which made this merger a logical step forward.<sup>66</sup> As noted by the University of Western Ontario's Dr. Vladimir Hachinski (b. 1941), a distinguished Canadian neuroscientist, "knowledge is acquired in pieces, but it is understood in patterns. Some of the important answers in science and medicine lie between fields."<sup>67</sup>

The University of Calgary Sport Medicine Centre is a world-class leader in sport and exercise medicine prevention and clinical service. The Sport Medicine Centre treats Canada's Olympians, the University of Calgary "Dino" teams, professional and many elite athletes, and many of Calgary's "weekend warriors."<sup>68</sup> The mission is to take the learnings from high-performance sport and evidence-based medicine and bring it to the whole community. Dr. Nick Mohtadi, who took over the position of director in January of 2015 from Dr. Preston Wiley, says he has stayed here because "the Sport Medicine Centre is the best place in North America to do sport medicine. The best place."<sup>69</sup> The Sport Medicine Centre has a history of innovation and high standards. One example that Dr. Mohtadi is most proud of over the centre's twenty-five years includes the Acute Knee Injury Clinic.<sup>70</sup> The clinic employs an approach that utilizes kinesiologists to help assess patients, moving them into the appropriate treatment stream

(surgery or physiotherapy) more quickly and thereby easing the bottleneck of patients waiting to see an orthopaedic surgeon.<sup>71</sup>

The centre's professional practice has transformed the way in which people in the community are cared for. Certainly, as the emphasis on physical activity as a tool for improving public health grows, the expertise of professionals with the combined knowledge and skills from kinesiology and sport medicine fields will continue to be highly sought after. This is positive news for kinesiology graduates.

## The Art and Science of “Then” and “Now”

Outside the north entrance of the Olympic Oval is “the Spire” created by Calgarian Charles Boyce. This installation was made possible by the money allocated by the Government of Canada to build the Olympic Oval Art collection. It is a huge structure that combines art and science. It symbolizes the progression of human movement—crawling, walking, running, jumping, and flying. It is affectionately known as “the Paperclip.” Perhaps what has held the faculty together through the many changes over the years, and especially our transition from physical education to the science-based knowledge of kinesiology, is not unlike the concept of a paperclip. After all, kinesiology is derived from the ancient Greek word *kinein* (“to move”) and *logia* (“study”). The faculty today does this at a very high level through a combination of teaching and scholarly activities across several very diverse research platforms with the goal of seeking the latest evidenced-based outcomes to improve function, health, and wellness. As Roberta Parks (an American physical education historian) noted, through it all the core of physical education, as one of the few academic fields that considers the human being in its totality, has been preserved.<sup>72</sup> *Then and Now.*



## NOTES

- 1 Leah Lacroix, Gillian Richmond, and Tracey Stewart, *The Fastest Ice in the World: Celebrating our 25-Year Legacy* (Calgary: University of Calgary, 2013).
- 2 Ibid.
- 3 *HPL Retrospective* (Friendly Films in Association with Oasis Productions, 2006).
- 4 David J. Whitson and Donald Macintosh, "The Scientization of Physical Education: Discourses of Performance," *Quest* 42, no. 1 (1990): 52–76.
- 5 Donetta J. Cothran, "Curricular Change in Physical Education: Success Stories for the Front Line," *Sport Education and Society* 6, no. 1 (2001): 67–9.
- 6 "Annual Reports," Faculty of Kinesiology, available at <https://www.ucalgary.ca/knes/research/human-performance-lab/annual-reports-hpl> (accessed 22 May 2019).
- 7 "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." The Constitution was adopted by the International Health Conference held in New York from 19 June to 22 July 1946, signed on 22 July 1946 by the representatives of 61 States, and entered into force on 7 April 1948. A copy of the WHO Constitution is available at <http://apps.who.int/gb/bd/PDF/bd47/EN/constitution-en.pdf?ua=1> (accessed 22 May 2019).
- 8 Christos Kleisiaris, Chrisanthos Sfakianakis, and Ioannidis V. Papathanasiou, "Health Care Practices in Ancient Greece: The Hippocratic Ideal," *Journal of Medical Ethics and History of Medicine* 7, no. 6 (2014): 1–5, esp. 3.
- 9 Governors of University of Calgary, "Kinesiology Curriculum," ed. Faculty of Kinesiology, <https://www.ucalgary.ca/knes/research/human-performance-lab/annual-reports-hpl> (accessed 22 May 2019). Kleisiaris, Sfakianakis, and Papathanasiou, "Health Care Practices in Ancient Greece," 4.
- 10 Frank W. D. McArdle, Victor L. Katch, and Frank I. Katch, "Introduction: A View from the Past," in *Exercise Physiology: Nutrition, Energy, and Human Performance*, 8th ed., ed. William D. McArdle, Frank I. Katch, Victor L. Katch (Baltimore, MD: Wolters Kluwer, 2015), xvii–lxii.
- 11 Jack W. Berryman, "Exercise is Medicine: A Historical Perspective," *Current Sports Medicine Reports* 9, no. 4 (2010): 1–7.
- 12 See "KNES 433—Health & Physical Activity—Winter 2018," available at <http://contacts.ucalgary.ca/info/kn/courses/w18/KNES433> (accessed 22 May 2019).
- 13 Sofie Ilsvard and Marie Østergaard Møller, "General Practitioners' Discretion of Preventive Needs," *Professions and Professionalism* 5, no. 3 (2015): 1–16, <https://journals.hioa.no/index.php/pp/article/view/1215/1378> (accessed 30 September 2018).
- 14 For comparison, see Edward Phillips, Rachele Pojednic, Rani Polak, Jennifer Bush, and Jennifer Trilk, "Advancing Lifestyle Medicine Education in Undergraduate Medical School Curricula Through the Lifestyle Medicine Education Collaborative (LMEd)," *American Journal of Lifestyle Medicine* 20, no. 1 (2015): 1–4.
- 15 "Health: Key Performance and Result," in *Alberta Health Services Annual Report* (Edmonton: Alberta Health Services, 2012–13), 15.

- 16 Vivian Nutton, ed., *Galen: Problems and Prospects: A Collection of Papers Submitted at the 1979 Cambridge Conference* (Cambridge: Cambridge University Press, 1979), 117–30; Heinrich von Staden, “Staging the Past, Staging Oneself: Galen on Hellenistic Exegetical Traditions,” in *Galen and the World of Knowledge*, eds. Christopher J. Gill, Ian Whitmarsh, and John Wilkins (Cambridge: Cambridge University Press, 2009), 132–55.
- 17 Canadian Society for Exercise Physiology, “Canadian Physical Activity Guidelines—For Adults: 18–64 Years,” [http://csep.ca/CMfiles/Guidelines/CSEP\\_PAGuidelines\\_adults\\_en.pdf](http://csep.ca/CMfiles/Guidelines/CSEP_PAGuidelines_adults_en.pdf) (accessed 22 May 2019).
- 18 Paul B. Laursen and David G. Jenkins, “The Scientific Basis for High-Intensity Interval Training,” *Sports Medicine* 32, no. 1 (2002): 53–73.
- 19 For example, see Andrew James Foy, Guodong Liu, William R. Davidson, Jr., Christopher Sciamanna, and Douglas L. Leslie, “Comparative Effectiveness of Diagnostic Testing Strategies in Emergency Department Patients with Chest Pain: An Analysis of Downstream Testing, Interventions, and Outcomes,” *JAMA Internal Medicine* 165, no. 5 (2015): 428–36.
- 20 Don McSwiney, “Nick Mohtadi Takes over Reins at Sport Medicine Centre,” *UToday*, 1 January 2015, <http://www.ualgary.ca/utoday/issue/2015-01-28/nick-mohtadi-takes-over-reins-sport-medicine-centre> (accessed 22 May 2019).
- 21 Felipe Lobelo, Mark Stoutenberg, and Adrian Hutber, “The Exercise is Medicine Global Health Initiative: A 2014 Update,” *British Journal of Sports Medicine* 48, no. 22 (2014): 1627–33.
- 22 Robert Sallis, “Moving Health: Celebrating the 10th Anniversary of Exercise is Medicine®—Much Accomplished, Much More to Do!,” *American College of Sport Medicine*, 21 November 2017, <https://www.acsm.org/blog-detail/acsm-blog/2017/11/21/10th-anniversary-exercise-is-medicine> (accessed 27 February 2019)
- 23 See “University of Calgary,” *Exercise is Medicine® Canada*, [https://www.exerciseismedicine.org/canada/support\\_page.php/university-of-calgary/](https://www.exerciseismedicine.org/canada/support_page.php/university-of-calgary/) (accessed 22 May 2019).
- 24 Domnhall MacAuley, “A History of Physical Activity, Health and Medicine,” *Journal of the Royal Society of Medicine* 87, no. 1 (1994): 32–5.
- 25 Amy J. Morgan, Alexandra G. Parker, Mario Jorm, and Anthony F. Alvarez-Jimenez, “Exercise and Mental Health: An Exercise and Sports Science Australia Commissioned Review,” *Journal of Exercise Physiology* 16, no. 4 (2013): 64–73.
- 26 Jerzy A. Zolacz, Andrzej Pilc, Joanna Majerczak, Marcin Grandys, Justyna Zapart-Bukowska, and Krzysztof Duda, “Endurance Training Increases Plasma Brain-Derived Neurotrophic Factor Concentration in Young Healthy Men,” *Journal of Physiology and Pharmacology* 59, no. 7 (2008): 119–32.
- 27 Concong He, Michael C. Bassik, Viviana Moresi, Kai Sun, Yongjie Wei, Zhongju Zou, Zhenyi An, Joy Loh, Jill Fisher, Qihua Sun, Stanley Korsmeyer, Milton Packer, Herman I. May, Joseph A. Hill, Herbert W. Virgin, Christopher Gilpin, Guanghua Xiao, Rhonda Bassel-Duby, Philipp E. Scherer, and Beth Levine, “Exercise-Induced BCL2-Regulated Autophagy is required for Muscle Glucose Homeostasis,” *Nature* 481, no. 1 (2012):

- 511–15; and Andrew A. T. Ludlow, Jo B. Zimmerman, Sarah Witkowski, Joe W. Hearn, Bradley D. Hatfield, and Stephen M. Roth, “Relationship Between Physical Activity Level, Telomere Length, and Telomerase Activity,” *Medicine and Science in Sports and Exercise*, 40, no. 9 (2008): 1764–71.
- 28 See “History of Kinesiology,” Faculty of Kinesiology, <https://www.ucalgary.ca/knes/about-kinesiology/about-us/history-kinesiology> (accessed 26 February 2019).
  - 29 “History in Brief,” in *Faculty of Physical Education: 25 Years of Achievement and Excellence* (Calgary: University of Calgary, 1991).
  - 30 Anthony W. Rasporich, *Make No Small Plans: The University of Calgary at Forty* (Calgary: University of Calgary, 2007), 1–5.
  - 31 “Bev Sandalack—A Former Physical Education Graduate,” Faculty of Kinesiology, <https://www.ucalgary.ca/knes/files/knes/kinesalumnfall06.pdf> (accessed 22 May 2019).
  - 32 Roberta J. Park, “The Emergence of the Academic Discipline of Physical Education in the United States,” in *Perspectives on the Academic Discipline of Physical Education*, ed. George A. Brooks, 20–45 (Champaign, IL: Human Kinetics Publishers, 1981).
  - 33 David J. Whitson and Donald Macintosh, “The Twenty-Third Amy Morris Homans Lecture—The Scientization of Physical Education: Discourses of Performance,” *Quest* 42, no. 1 (1990): 40–51.
  - 34 This comes from a document sent to all academic faculty on 11 April 1989.
  - 35 “History in Brief,” in *Faculty of Physical Education: 25 Years of Achievement and Excellence*.
  - 36 Dr. Roger Jackson played an integral part in bringing the 1988 Olympic Games to Calgary and served for an additional seven years as an executive member of the organizing committee. As dean of the Faculty of Kinesiology, he was the guiding force in the building of the Olympic Oval and the Physical Education Complex at the University of Calgary. He was the founding director of the university’s Sport Medicine Centre and initiated the faculty’s first graduate and research programs. In honour of his achievements and his contributions to the university, the Roger Jackson Centre for Health and Wellness Research on the University of Calgary campus was named after him. He has played an active role in university athletics, including as president of the Canada West University Athletic Association. He is a former director of Sports Canada, former president of the Canadian Olympic Association, and former chief executive officer for “Own the Podium in 2010,” the initiative designed to help Canada become the number one nation in terms of medals won at the 2010 Vancouver Winter Olympic Games and Paralympic Games. See Sarah Tezel, “Sports, Medicine, and the Emergence of Sports Medicine in the Olympic Games: The Canadian Example,” *Journal of Sport History* 34, no. 1 (2007): 75–86.
  - 37 *Faculty of Physical Education: 25 Years of Achievement and Excellence* (Calgary: University of Calgary, 1991), 3.
  - 38 Harvard University Widener Library Catalog, *Description of Course Study* (Cambridge, MA: Lawrence Scientific School, 1891–92), 222.

- 39 Don McSwiney, "Co-Founder of Human Performance Lab Benno Nigg Retires," *UToday*, 26 June 2014, <https://www.ucalgary.ca/utoday/issue/2014-06-26/co-founder-human-performance-lab-benno-nigg-retires> (accessed 22 May 2019).
- 40 Ibid.
- 41 Ibid.
- 42 *Annual Report 1981*, Faculty of Kinesiology, [https://www.ucalgary.ca/knes/files/knes/1981\\_w.pdf](https://www.ucalgary.ca/knes/files/knes/1981_w.pdf) (accessed September 30, 2018).
- 43 *Annual Report 2001*, Faculty of Kinesiology, <https://www.ucalgary.ca/knes/files/knes/ar2001.pdf> (accessed 22 May 2019).
- 44 Ibid.
- 45 Ibid.
- 46 Canadian Fitness and Lifestyle Research Institute, *National Health Expenditure Trends, 1975–1999* (Ottawa: Canadian Institute for Health Information, 1999), 1.
- 47 Population health is a field of health that aims to "maintain and improve the health of the entire population, and to decrease inequities in health status among various population groups. This approach focuses on the interrelated conditions or determinants that most influence health, and applies the evidence to suggest broad priority areas for action." See "The Population Health Template Working Tool," *Health Canada* (July 2001), 2, available at [http://www.phac-aspc.gc.ca/ph-sp/pdf/template\\_tool-eng.pdf](http://www.phac-aspc.gc.ca/ph-sp/pdf/template_tool-eng.pdf) (accessed 22 May 2019).
- 48 Tezel, "Sports, Medicine, and the Emergence of Sports Medicine in the Olympic Games," 75–86.
- 49 *Annual Report 1988*, Laboratory for Human Performance Studies, [https://www.ucalgary.ca/knes/files/knes/1988\\_w.pdf](https://www.ucalgary.ca/knes/files/knes/1988_w.pdf) (accessed 22 May 2019).
- 50 Ibid.
- 51 Karl M. Newell, "Physical Activity, Knowledge Types, and Degree Programs," *Quest* 42, no. 3 (1990): 227–42.
- 52 Karl M. Newell, "Kinesiology: Challenges of Multiple Agendas," *Quest* 42, no. 3 (1990): 5–24, esp. 6.
- 53 Canadian Kinesiology Association, "Canadian Kinesiology Association is Launched," *Kinesiology Across Canada* 1, no. 1 (2000): 1–12.
- 54 Memo from Mike Hawes, dated 4 May 1994.
- 55 Ibid.
- 56 "History of Kinesiology," Faculty of Kinesiology, <https://www.ucalgary.ca/knes/about-kinesiology/about-us/history-kinesiology> (accessed 22 May 2019).
- 57 Don McSwiney, "Expanding world of dance therapy calls to university researcher," Faculty of Kinesiology, 22 July 2015, <https://www.ucalgary.ca/utoday/taxonomy/term/334/www.ucalgary.ca/haskayne.ucalgary.ca/haskayne.ucalgary.ca/hbi.calgary.ca?page=455> (accessed 22 May 2019).

- 58 “The combined dance degree will create a new kind of student,” says Dean Werthner. “These graduates will bridge the worlds of science and art and bring a passion to both fields. The combined graduates will have a unique and important skill set that will lead to innovative ways of thinking about dance as both an art and also as therapeutic physical activity.” See “Kinesiology News,” Faculty of Kinesiology, 21 November 2013, <http://www.cda-acd.ca/news-media/first-combined-dance-and-kinesiology-degree-in-canada> (accessed 22 May 2019).
- 59 Jerry R. Thomas, “The Public Face of Kinesiology in the 21st Century,” *Quest* 66, no. 3 (2014): 313–21.
- 60 Patty Freedson, David Buchner, Russ Pate, Brad Hatfield, Loretta DiPietro, David A. Dziewaltowski, Tim Gavin, and Jeff Nessler, “Integrating Public Health in Kinesiology: Instruction, Academic Programs, Research, and Outreach,” *Kinesiology Review* 4, no. 3 (2015): 355–69.
- 61 The Provincial Fitness Unit is a leader in certification and sets the standard for personal trainers, fitness consultants, and fitness appraisers. They are nationally affiliated, and their certifications meet national and international recognized standards. It is the only Alberta registry of exercise professionals recognized by the International Confederation of Registers for Exercise Professionals. Its website can be visited at <http://www.provincialfitnessunit.ca>.
- 62 “As the Gold Standard in Exercise Science and Personal Training, CSEP-SCPE ensures excellence in exercise physiology, health, and fitness through research and best practice. By foregrounding our work in evidence-based research, we ensure that CSEP-SCPE remains a leader in exercise science and personal training, and in doing so, our members are privy to cutting edge information that situates their work at the forefront of exercise science and personal training activity and research.” See “Why Choose a CSEP Certification?” (PowerPoint presentation, slide 6), Canadian Society for Exercise Physiology, available at <https://slideplayer.com/slide/7327400/> The slide deck can be visited <https://slideplayer.com/slide/7327400/> (accessed 27 February 2019).
- 63 See “Exercise Specialist,” Alberta Health Services, <http://www.albertahealthservices.ca/careers/page11748.aspx> (accessed 22 May 2019).
- 64 *Annual Report 2003*, <https://www.ucalgary.ca/knes/files/knes/ar2003.pdf> (accessed 30 September 2018).
- 65 Ibid.
- 66 Tezel, “Sports, Medicine, and the Emergence of Sports Medicine in the Olympic Games,” 75–86.
- 67 Paul Mayne, “Vladimir Hachinski. Clinical Neurological Sciences Professor at the University of Western Ontario,” University of Western Ontario, Clinical Neurological Sciences, 24 march 2016, <http://news.westernu.ca/2016/03/leonard-shoemaker-named-distinguished-university-professor/> (accessed 22 May 2019).
- 68 A weekend warrior completes the recommended weekly physical activity requirement of 150 minutes or more in one or two days rather than spreading it out evenly over the week. Based on Alberta data published by Derek J. Roberts, Jean-Francois Ouellet, Paul B. McBeth, Andrew Kirkpatrick, Elijah Dickson, Chad G. Ball, “The Weekend Warrior: Fact or Fiction for Major Trauma?” *Canadian Journal of Surgery*, 57, no. 3 (2014): E62–8.

The weekend warrior is more likely to be severely injured when comparing all adults who were severely injured while engaging in physical activity on weekends versus weekdays between 1995 and 2009.

- 69 Don McSwiney, "Nick Mohtadi Takes over Reins at Sport Medicine Centre," *UToday*, 1 January 2015, <http://www.ucalgary.ca/utoday/issue/2015-01-28/nick-mohtadi-takes-over-reins-sport-medicine-centre> (accessed 30 September 2018).
- 70 Ibid.
- 71 Ibid.
- 72 Park, "The Emergence of the Academic Discipline of Physical Education," 20–45.

## Environmental Design: Creating Healthy Spaces and Places

*Barbara Dupuis, David Monteyne, and Brian Sinclair*

*The primary aim of the Faculty of Environmental Design is to offer an educational process and programme through which students may acquire knowledge and skills enabling them to contribute towards a better harmony between Man and his Environment.*

—proposed degree program and curriculum, 1972–3<sup>1</sup>

The Faculty of Environmental Design—or EVDS, as it is commonly known—has a long and rich history within the sphere of public health and wellness.<sup>2</sup> In particular, the 1970s concept of “harmony” between humans and their environments, both natural and built, situated EVDS teaching, research, and practice in immediate relation to public health in Alberta and beyond. What is especially important to the faculty’s history is the deployment of design, across a nested array of scales, as a vehicle to improve communities, landscapes, buildings, and interiors, and, as a result, the quality of life for the people who work, dwell, and play in such environments. That is, in EVDS we think of health and wellness as a design problem. We include here not only the traditional definition of physical health, but mental, social, spiritual, and community health as well.<sup>3</sup>

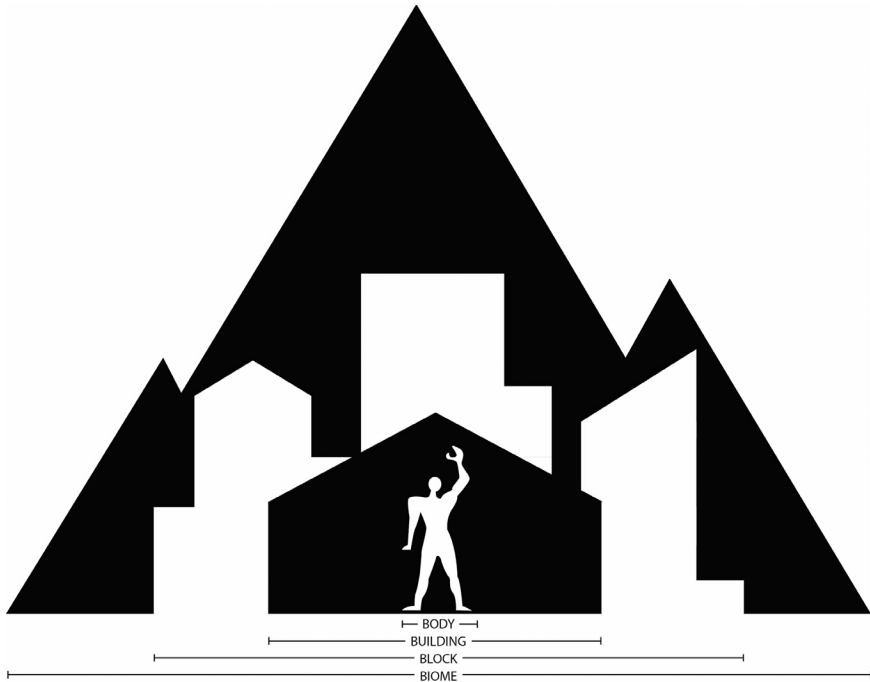


FIGURE 4. Illustration of scales in the Faculty of Environmental Design.

Over the past four and a half decades, EVDS faculty and students, independently and collaboratively, have undertaken an impressive array of design projects relating to health and wellness, and these designed and proposed interventions have spanned a range of scales, from the human to the regional. Scales are used within EVDS to demarcate the plane on which a given research project focuses its analysis and intervention, like zooming in to and out of a Google map.<sup>4</sup> EVDS research could reside at any step on the map, and often bridges multiple scales. We design products, interiors, buildings, landscapes, and public areas. We plan neighbourhoods, cities, and regions. In all cases, and over all scales, we are deeply attentive to how our design and planning efforts contribute to an improved quality of life. The complexity of this endeavour has required environmental designers to adopt an interdisciplinary ethos that promotes collaboration among different professions and academic approaches. After a brief discussion of



the founding of EVDS and what we mean by “design,” this chapter then explores examples of EVDS research in sections organized by scale, specifically the scales of body, building, block, and biome (see figure 4). With this survey of faculty and student work since the 1970s, we hope to give a sense of the wide-ranging legacy of EVDS in the public-health milieu of Alberta.

## Environment and Design

The character and interdisciplinary approach of EVDS was forged in 1971, at a moment in which established pedagogies and concerns in the design professions were being questioned in the face of broader social movements.<sup>5</sup> The concerns raised in the previous decade by citizen protest movements, urban rebellions, and rights-based claims reverberated among architects and urban planners. These design professionals already were reacting against the rationalist tenets of modernism, just as laypeople reacted against the perceived coldness, abstraction, and psychological oppression of modernist design and urbanism.<sup>6</sup> Meanwhile, the birth of an environmental movement in the early 1970s encouraged designers to think beyond the boundaries of a specific building site or city, and to consider the natural and infrastructural ecologies in which humans and nature are embedded.<sup>7</sup> The founding of U of C’s new Faculty of Environmental Design certainly was influenced by a similar restructuring of the design degrees in the newly formed College of Environmental Design at the University of California, Berkeley—a hotbed of radical thinking in that era.<sup>8</sup> Also in parallel, the academic social sciences spawned specializations in environment-behaviour studies such as environmental psychology and sociology of space, while the hard sciences became interested in quantifiable characteristics of indoor air quality, daylighting, and alternative forms of energy production. As an ambitious new faculty, EVDS hoped to somehow capture this zeitgeist.

For many years, EVDS offered a somewhat hybrid master of environmental design (MEDes) degrees that combined significant coursework with a thesis-like master’s degree project (MDP). In different eras, MEDes specializations have been available in everything from architecture and planning, to industrial design, urban design, and environmental science. The structure of EVDS degrees has changed in the past decade in response

to pressures from national accreditation bodies in the professions, and from institutional demands. We now offer three professional degrees in architecture (MArch), planning (MPlan), and landscape architecture (MLA). The MEDes degree continues as a post-professional, thesis-based degree for students interested in pursuing in-depth research in any of the areas of environmental design.<sup>9</sup>

EVDS has always been a professional faculty, its pedagogy driven by the necessity of providing professional credentials and upholding the professional standards established by provincial and national bodies. Yet human and environmental issues such as public health extend beyond the boundaries of individual professions, and EVDS has continuously promoted a diverse interdisciplinary approach to design. Over time, this has been manifest in faculty-wide courses that mix students from different degrees in philosophical debates, service learning, and community projects, and in partnerships with other faculties and agencies, such as the Faculty of Social Work, the University's O'Brien Institute for Public Health, and the City of Calgary. Interdisciplinarity represents our pioneering design approach to so-called wicked problems that bridge scales and disciplinary knowledges.<sup>10</sup>

A basic understanding of how we define the idea of "design" is essential to understanding the work presented below. Often, when people think of design they think of the final outcome:<sup>11</sup> a consumer product, a functional building, or a new neighbourhood. We in the U of C Faculty of Environmental Design define design as more than the end result; rather, it also encompasses the process used to frame a problem and develop solutions. The design process involves several stages, including defining the issues to be addressed, researching the issues and their contexts, brainstorming, drafting options, prototyping the possibilities, testing or consulting end-users, and revising through many iterations to get the best fit between human and environment at the appropriate scale for a particular project. Design provides a forum for generating innovative ideas, only a few of which will survive scrutiny and be turned into potential solutions. The process can span multiple iterations, prototyping and testing the fit between the users and the design, with end-users providing critical feedback on the strengths and weaknesses of the design. This step is essential to fine-tuning solutions. A design that seems appropriate in theory might require testing of different sizes or various materials to suit a spectrum of

users. This is also where designers can test the ease of manufacturing the product. Overall, design is a process that explores many options leading to well-considered outcomes that best meet user needs.<sup>12</sup>

Design is also a process that results in many hypothetical iterations and possible scenarios. In an EVDS education, students are typically asked to hone their design skills in relation to hypothetical situations and clients. Occasionally, students are involved in real-world projects that get built or manufactured, but for the most part we rely on the students' education to inform their approaches to designing healthy human environments as future professionals. The breadth of EVDS work presented in this chapter was derived from two main sources. First, faculty members and emeriti were interviewed about the connections between their research and health, broadly defined.<sup>13</sup> Second, EVDS's collection of student MDPs and EVDS 702 class projects were assessed for apposite content. MDPs were capstone projects that utilized the skills which students developed during their degree to investigate and present new knowledge on a topic. EVDS 702 was a long-standing advanced-practice course—it combined all EVDS students into interdisciplinary teams to tackle real-world case studies. Selected examples of germane MEDES and PhD research were also included.<sup>14</sup> As with any teaching, it is partly a leap of faith to conclude that the principles of EVDS have been carried by our students into their professional lives, but we remain confident that the legacy of EVDS research and practice has had significant and positive impacts on the health of Albertans.

## Body: Projects at the Human Scale

The human body is the starting point for design at any scale. In EVDS, we are concerned about the healthy interface between humans and their world, whether that means a better chair, a safer stair, or a sustainable transportation system. Some design work focuses on things we use with our hands, or other appendages, that are meant to be manipulated by individuals. Within this theme, our attention is drawn most notably to the dimensions, operations, limitations, and opportunities of the human being. At the scale of the body, EVDS has been most active in the field of industrial design, where the production of tools and other objects is focused particularly on meeting the needs of the individual. For example,

Professor Barry Wylant has generated several new designs for medical devices.<sup>15</sup> In the late 1980s, a joint project between the Faculty of Environmental Design and the Faculty of Medicine also resulted in the production of a commercially-viable sleep apnea mask and pump. The device ensured positive air pressure required to keep the throat open at night, thereby allowing for more comfortable sleep. Versions of the device remain on the market today.<sup>16</sup>

When the body is healthy, EVDS has worked in a preventative capacity, designing solutions that lessen the chance of damage to or decline of physical health. This is seen especially in the field of physical ergonomics, which seeks to design the everyday products we use in ways that makes them complement the human anatomy and reduce stress associated with poor working or living conditions. Injury mitigation plays a role, as researchers search for ways to lessen musculoskeletal injuries from repetitive work such as manual assembly. The field uses a design process focused on continued testing and refinement of layouts or shapes to allow for the best fit between an individual and a product.<sup>17</sup> Material choice is also important, in part to create rugged products capable of withstanding vigorous use, and in part to deploy materials that better conform to the human body. EVDS faculty and students have thus performed ergonomic analyses and redesigned many products to improve their interface with the body.<sup>18</sup> Specific projects have included the design of a birthing chair for easier labour; ergonomic analysis and redesign of an adjustable microscope stand to improve scientists' working posture; and ergonomic analysis and redesign of a police car to improve the health of officers (see figure 5). The common theme of all these projects is physical comfort: re-working established designs to make repetitive or strenuous tasks more user-friendly.

When the physical body needs assistance—to move in space, for instance—design also plays key roles. Barrier-free design, for example, is an approach used to create products and environments that accommodate, and diminish the implications of, physical limitations. Faculty and students have designed diverse products, from a hand-powered vehicle for the mobility impaired, to an assisted chair rise for the elderly.<sup>19</sup> These designs work to lessen the impact age or bodily injury has on everyday quality of life. Such innovations permit individuals to realize more physical comfort and enjoy expanded freedom.

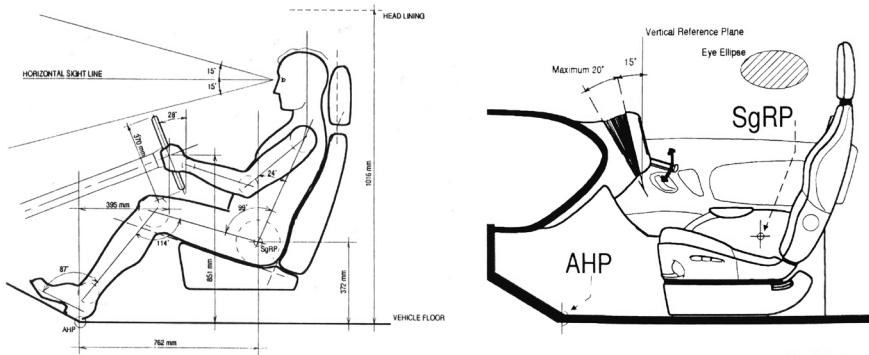


FIGURE 5. Seating configuration of patrol vehicle, 1995.

While ergonomics is often thought of as a physical pursuit, a second type of ergonomics, called cognitive ergonomics, is concerned with mental activity and making products and processes clearer for people to understand and use, and to support users emotionally. This sub-discipline of the faculty strives to make user interfaces simple but functional, and to provide a level of comfort with technologies that might otherwise be alienating or confusing to users, such as the elderly. Within this theme, other factors of personal well-being emerge, including mental health and social connection with others. Social support systems are important to the maintenance of health. Early in the faculty's history, Professor Ron Wardell undertook research in usability, making devices clear for people to understand and use.<sup>20</sup> He also researched topics in emotional design, questioning how products could assist people in coping with difficult emotions like grief. Wardell supervised student projects relating to the redesign of a user interface on a neonatal incubator;<sup>21</sup> designing a product for cancer survivors that encouraged social support and exercise;<sup>22</sup> and investigating why we “love” and emotionally attach to certain products.<sup>23</sup> These projects examine the role of objects in human connection and support networks, and propose vital questions: Can products change how you feel? Can they make it easier to connect in a time of need?

During the 1990s, Wardell also developed “ergonomics plans” for institutions, including the University of Calgary, the City of Calgary, and

the Alberta oil fields.<sup>24</sup> The explosion of ergonomics research in that decade followed upon the insights of earlier environment-behaviour studies. Continuing under other names and themes, ergonomic research remains central to workplace wellness initiatives, design for aging-in-place, and other public health concerns. These kinds of ergonomic issues have also been relevant at a larger scale, as architects work to design buildings and interiors with a similar purpose—supporting human comfort and fostering good health.

## Building: Projects at the Architectural Scale

At this point, we expand from the realm of the human body into the spaces that host our everyday lives—namely architecture. As Canadians, we spend close to 90 per cent of our time indoors, making the design of healthy environments particularly vital.<sup>25</sup> Building interiors are not neutral containers of everyday life—they can significantly impact human health. Building scientists look at the interior of buildings to study how they contribute to physical and emotional health. Architectural design is a complex activity that requires diverse needs, processes, and products to be brought into harmony. Architectural topics in health, which the faculty historically has focused on, include indoor air quality, daylighting, and the mitigation of allergens inside buildings. Individual sensitivities can become a social problem if entire communities experience poor and unhealthy housing, schools, or workplaces.<sup>26</sup> Moreover, the health qualities of a building often parallel its broader impact, and EVDS has a long tradition of sustainable-design research promoting architecture that does less damage to the natural environment. Finally, in this section we also explore how certain building types or user needs have been consistent topics for architectural inquiry in EVDS.

One way to measure the quality of environment at the building scale is to study indoor air quality. For the past three decades, EVDS researchers have investigated the effect of moulds, fungi, and cigarette smoke on human health, and have sought to mitigate these effects. This work was often completed in partnership with doctors or hygienists looking for the causes of particular symptoms. For several decades, Professor Tang Lee has been the primary EVDS researcher on the topic of indoor air quality. In 2001, his expert testimony led to the closure of Calgary's Court of

Appeals building. Lee and his epidemiology collaborators could demonstrate that the chronic illnesses and sensitivities among many of the judges who worked in the building were a direct result of mould growing within the structure. Hence, Lee diagnosed the courthouse with “sick building syndrome,” a designation that has received increasing currency in environmental design circles since the 1980s.<sup>27</sup> Student work on indoor air quality also contributed to this legacy of intervention, by proposing the creation of a hypoallergenic centre for extremely sensitive patients.<sup>28</sup>

Our experience of architecture can be influenced by a number of factors: atmosphere, pattern, visual cognition, lighting, interior design, and so on. The thrust of environmental psychology research, which influenced EVDS in its formation, is that individuals or groups can be emotionally, socially, and even physically affected by their built environments. A facet of healthy architectural interiors is the quality of lighting. Numerous EVDS students have worked on projects aimed at optimizing daylight in buildings,<sup>29</sup> and on how to make residential lighting more sustainable.<sup>30</sup> This research focus continues today because well-lit rooms cause less eye strain and are easier to work in, while daylighting also reduces energy usage.

Indeed, in an era marked by depleting resources and increasing pollution, architects are being charged with the creation of responsible and sustainable buildings. Since its founding in 1971, EVDS has been a leader in an area now commonly referred to as “green building.” Sustainable design directly affects the health of humans. As we require and extract precious resources, we generate emissions that impact our health. The fewer emissions we produce, the cleaner, too, are our life-support systems of air, water, and land. Creating buildings that have efficient environmental-control systems (such as heating or cooling) means a lower-impact building, with fewer emissions, and a better carbon footprint. As far back as 1977, EVDS students proposed energy-efficient townhouses for Calgary, which featured solar collecting units, a shelterbelt, and south-facing orientation.<sup>31</sup> The search for energy-efficient and alternative-energy homes continues today. These concerns are also represented at the Solar Decathlon, a biennial competition sponsored by the United States Department of Energy that challenges teams to “design, build, and operate solar-powered houses that are cost-effective, energy-efficient, and attractive.”<sup>32</sup> EVDS has participated in three of these competitions—in 2009, 2011, and 2013—with the houses they designed and constructed each time scoring in the top ten of

finalists. The Calgary teams have been interdisciplinary, with architecture and environmental design students working side by side with others from business and engineering, and from the Mount Royal University and the Southern Alberta Institute of Technology. The 2011 house, designed in consultation with Aboriginal communities, survives as a cultural meeting place on the University of Calgary campus too.<sup>33</sup>

EVDS research into environmentally responsible architecture also encompasses the heating and cooling systems used to maintain a comfortable interior. For thirty years, Professor Jim Love's interest in sustainable building design has focused on climate-control systems for architecture in winter cities.<sup>34</sup> He consulted as an energy engineer on buildings like the University of Calgary Child Development Centre and Canmore's Lawrence Grassi School, which have been touted as models in the national challenge to achieve carbon-neutral buildings by 2030.<sup>35</sup> In line with these cutting-edge sustainability practices, new lines of inquiry have recently arisen as environmentally beneficial design solutions. Having buildings adapt to users, rather than forcing users to accommodate to rigid spaces, is centrally connected to health and wellness, as well as sustainability. Research undertaken by Professor Brian R. Sinclair and his students on "Open Building" includes work on building customization, prefabrication, modularity, and design-for-disassembly—practices that allow buildings to be modified over time, to accommodate users comfortably without requiring demolition.<sup>36</sup> Adapting and reusing what is already available, instead of rebuilding, keeps the carbon footprint low. Meanwhile, the new world of sensors and robotics has opened the possibility of "responsive architecture," buildings that can learn to adjust lighting, temperature, energy use, or other systems automatically according to the presence of specific users. Professors Branko Kolarevic and Vera Parlac work in this area with their students.<sup>37</sup>

The long list of EVDS student projects on sustainability at the architectural scale are varied; a few examples include investigation into the public's awareness of how energy efficiency affects them;<sup>38</sup> a feasibility study for building a multi-use centre that would utilize waste heat from a compressor station;<sup>39</sup> a design for a research and farming complex that utilizes waste heat and carbon dioxide from a gas plant;<sup>40</sup> and proposals for net-zero-energy housing for wide public adoption.<sup>41</sup> These projects answer



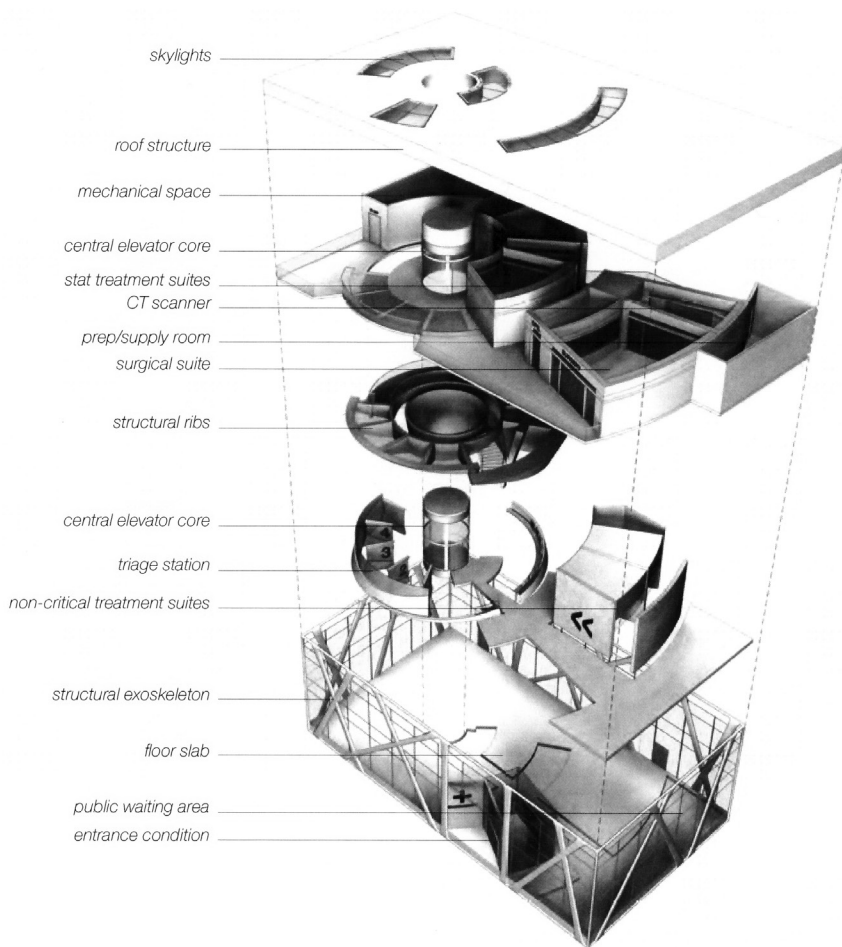


FIGURE 6. Exploded rendering of emergency care configuration, 2012.

to the need for designing innovative solutions that tackle the environmental consequences of current industry and building practices in Alberta.

Certain building types are associated closely with health and wellness. No review of health in EVDS would be complete without discussing the work we have done in hospital and health-care design: buildings can be designed to lessen the anxiety and strain patients and their families feel during a stressful health situation. Making large hospitals complexes welcoming and easy to navigate for patients while simultaneously balancing

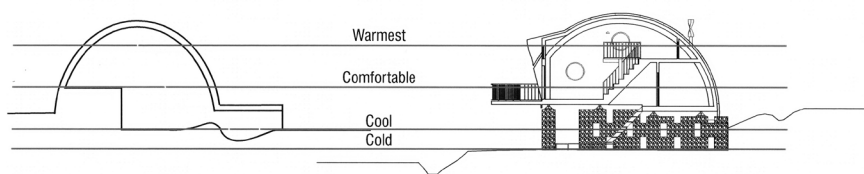


FIGURE 7. Comparison of temperature differentiation in culturally sensitive housing for Northern Canada, 2011.

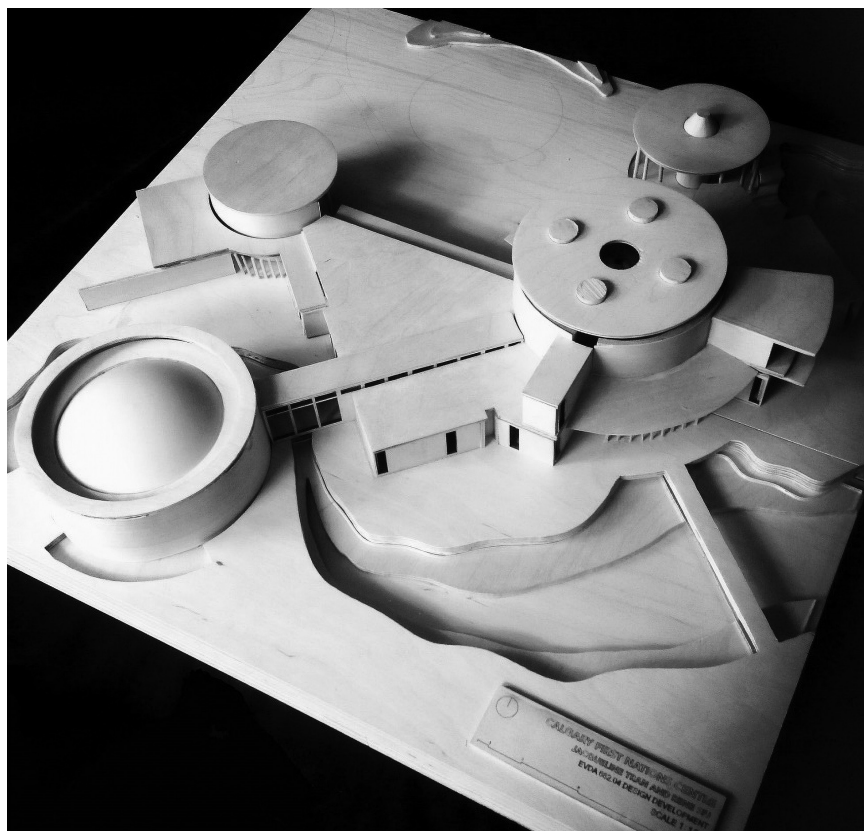


FIGURE 8. Model of proposed Calgary First Nations Centre, 2013.

the need for hospitals to be efficient and healthy workplaces for staff is a constant challenge. Decades of student work on this problem has included programming studies and proposals for community health centres;<sup>42</sup> a design for a laser eye surgery clinic;<sup>43</sup> the sensitive design of buildings for palliative care, hospices, kid-friendly paediatrics wards, and dental offices;<sup>44</sup> making sure long-term-care facilities are places of inclusiveness and belonging;<sup>45</sup> and investigating how architecture can be sensitive to death, bereavement, and healing.<sup>46</sup> The common theme running through this work across the history of EVDS is a focus on human well-being, comfort, and care, whether child or adult, staff or patient (see figure 6).

Culturally sensitive housing represents another building type significant to public health, which has been studied extensively within EVDS. Housing is best designed to reflect people's heritage and traditions—and accommodate their diverse values and ways of living. Acknowledging that humans can live in different ways provides designers with a stepping stone to broaden their perspectives on what “should” be. Culturally sensitive housing can bring a sense of peace and home to people who feel out of place, especially to members of minority populations. Student work in this area has included a number of design solutions for remote housing in the North,<sup>47</sup> housing for dependent seniors in Native communities,<sup>48</sup> and designs for northern Canadian Indigenous communities (see figure 7).<sup>49</sup>

These solution-focused projects strove to accommodate diverse ways of being in sometimes harsh climates. An extension of this work has been designs for culturally sensitive community centres, such as those produced in a recent architecture studio course (see figure 8).

For special-needs groups such as the elderly, architectural design solutions can make a significant contribution to healthful quality of life. Student work on design solutions for the needs of the elderly has exploded in the twenty-first century, as demographics have changed in Alberta.<sup>50</sup> Students have designed a self-contained senior-citizen housing complex;<sup>51</sup> a day centre that provides support and connection for rural seniors;<sup>52</sup> interactive housing for seniors;<sup>53</sup> supportive housing options that allow retirement in a rural context;<sup>54</sup> and have investigated how environmental designers can evaluate supportive living facilities for seniors.<sup>55</sup> These projects emphasize that seniors require caring, supportive environments to flourish in their “golden years.”

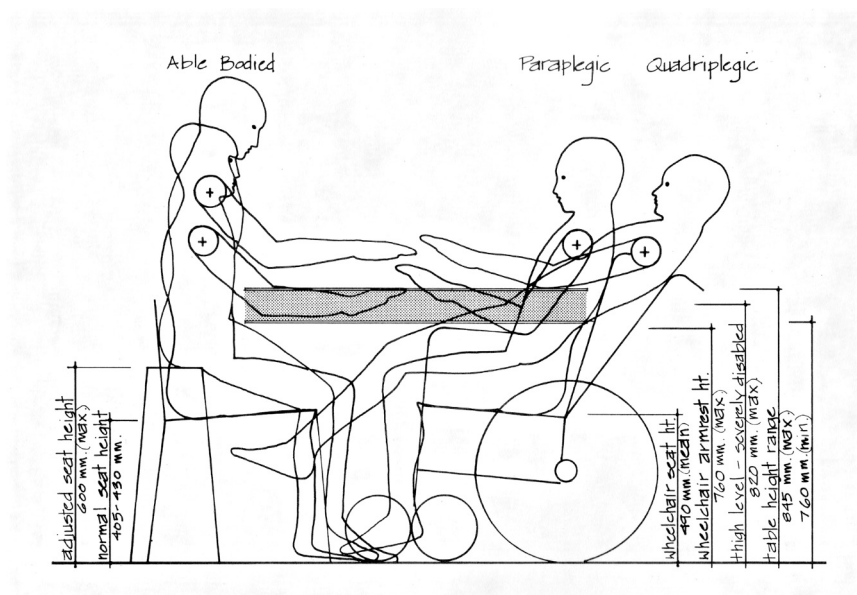


FIGURE 9. Design considerations for differing mobilities, 1983.

Barrier-free design also emerges here as we endeavour to design rooms and buildings that are accessible to everyone. Students have worked to determine the design requirements of less-mobile individuals, including those in wheelchairs.<sup>56</sup> Everything from doorways and bathroom stalls, to transit platforms and public spaces, must be designed to accommodate all mobilities (see figures 9 and 10).

Thinking more broadly of the scale of neighbourhoods and cities, student work also has included studies in barrier-free design for accessibility at the University of Calgary itself;<sup>57</sup> considerations to take when proposing a public transport policy for the physically disabled;<sup>58</sup> and a proposed plan for barrier-free transportation in Red Deer.<sup>59</sup> For those unable to drive, this type of inclusive transportation enhances quality of life, while refining traditional designs to be accessible for everyone.

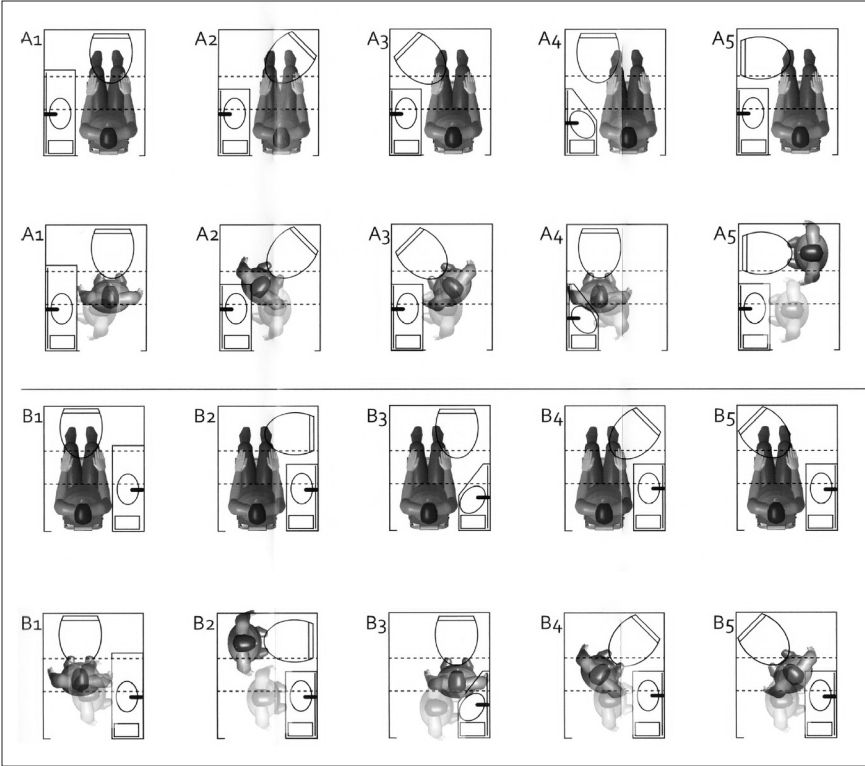


FIGURE 10. Sample of washroom design configurations, 2012.

## Block: Projects at the Neighbourhood and City Scale

Zooming out on the architectural-mapping perspective, we arrive at the scale of the city block. At this scale, projects address the built fabric of the city and demonstrate concern for the public-health needs associated with the development of communities and cities. Urban planning can include physical aspects, policy concerns, social qualities, and cultural diversity. Urban design tackles the health aspects of streets and spaces between buildings. Working at the scale of the neighbourhood and city, EVDS projects have aimed to improve the quality of life in towns and cities of Alberta, within Canada, and well beyond. Key themes over the years have

included active transportation, safety, uneven access to housing and public space, and the importance of planning for urban resilience.<sup>60</sup>

Active-transportation research in environmental design has shown that a component of well-being in urban areas is access to services via multiple modes of transportation. For example, walkability is the measure of how easily the built environment accommodates walking as a primary form of transportation. It takes into account the block pattern (whether grid, curvilinear, or other), block size, number of intersections, pedestrian crossings, and sidewalk amenities. Professors Beverly Sandalack and Francisco Alaniz Uribe have pursued research on this subject within Calgary, rating the city's communities for their ease of walking.<sup>61</sup> Designing for pedestrian and bicycle accessibility means linking pathways and destinations in a meaningful and coherent way. The thought behind this research is that increased walkability allows more opportunities for a person to engage in physical activity through the day. A well-designed neighbourhood can make it easy and enjoyable to walk to lunch with a co-worker, or to complete errands without a car.

Beyond the sidewalk system, a well-developed path system also allows for rollerblading, skateboarding, or biking as means of active transport and recreation.<sup>62</sup> Supporting the health of Albertans through active transport has been a persistent concern for EVDS students, going back to a 1975 design of bike and ski paths for the University of Calgary (see figure 11).<sup>63</sup> Students have also designed path networks for the towns of Banff<sup>64</sup> and Strathmore;<sup>65</sup> examined pathway policies in Calgary;<sup>66</sup> proposed how to make Calgary's pathway network safer for multiple user groups;<sup>67</sup> and how to integrate bicycles on public transport.<sup>68</sup> These proposals seek to expand residents' active-transportation options and give them an outlet for physical activity, promoting public health as a quotidian concern.

In addition to physical health, well-being encompasses the social support systems people need to thrive, such as safe communities, mental-health support, and social inclusion. Well-being in cities encompasses safety and the prevention of crime—people will not walk where they do not feel safe. For instance, mixed-use communities can impact how safe a person feels while walking alone, because these communities accommodate activities day or night. Safe cities offer more accessibility to public space and recreational opportunities. While the concept of “crime prevention through environmental design” has been a significant sub-theme



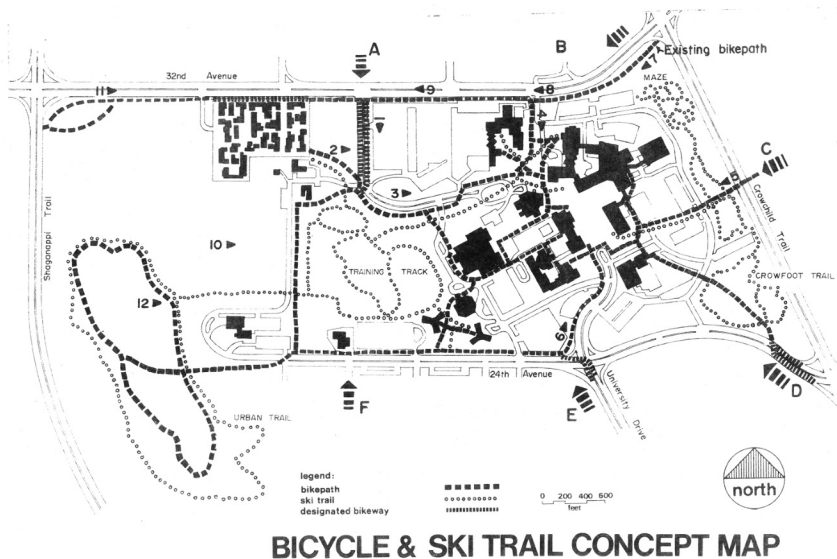


FIGURE 11. A proposed network of trails for active transport on the U of C Campus, 1975.

of environment-behaviour studies and urban planning practice in the United States since the early 1970s, this type of research did not appear in EVDS until the 1990s, perhaps related to urban growth and economic fluctuations in Calgary.<sup>69</sup> Professor Noel Keough has undertaken a project called “Safer Calgary,” which addresses aspects of urban safety such as traffic, workplace, and youth issues, and public spaces including playgrounds.<sup>70</sup> Student work has comprised research into crime prevention and community safety audits in specific neighbourhoods;<sup>71</sup> investigation into urban form and pedestrian accidents;<sup>72</sup> and a study of the geography of crime and prostitution in Calgary.<sup>73</sup> Investigating the current state of the urban environment allows proposals for improvements to benefit the safety of all citizens who use public spaces.

The geography of poverty in Alberta is also an issue of concern for EVDS.<sup>74</sup> Shortages of rental and other forms of affordable housing can cause systematic family stress or homelessness. Our faculty and students have worked on homeless-shelter design and the politics of siting in Calgary.<sup>75</sup> Beginning in the late 1980s, and increasing in the past decade or so of

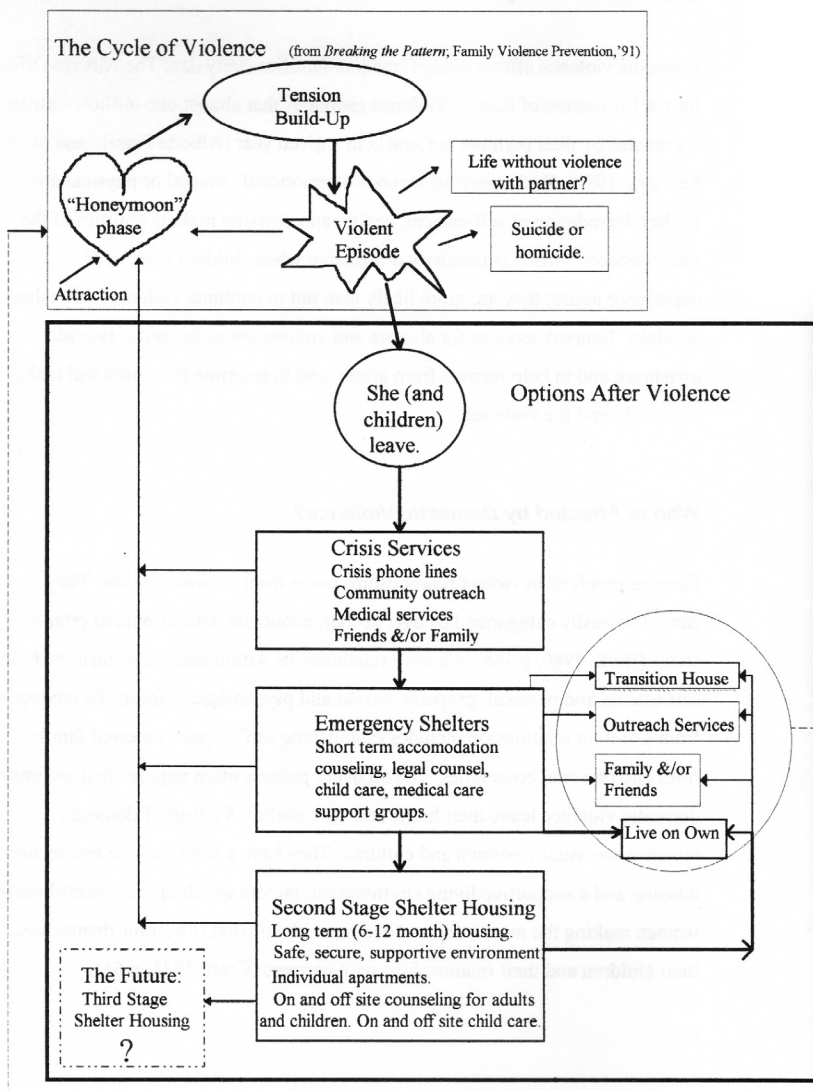


FIGURE 12. Options other than violence, 1996.



Calgary's growth, students have also focused on specific types of shelters: a youth emergency shelter,<sup>76</sup> a homeless shelter for a voiceless group,<sup>77</sup> and second-stage housing for victims of domestic abuse (see figure 12).<sup>78</sup>

These projects propose sensitive housing solutions for groups not normally accommodated by traditional options, a temporary but important place where individuals or families can begin to restore their physical, mental, or economic health. In terms of affordable housing, student projects have included: investigating the growing issues of home affordability in Calgary;<sup>79</sup> assessing the quality of an existing low-income housing project;<sup>80</sup> finding ways to break down barriers to affordable home ownership;<sup>81</sup> investigating the use of public-private partnerships to create more affordable housing;<sup>82</sup> and creating an affordable-housing strategy for the town of Strathmore.<sup>83</sup> These EVDS projects proposing and promoting affordable housing hoped to offer a sense of security to people who face daily challenges in their attempts to maintain healthy lives.

While quality housing is essential to human health, defining and improving the quality of public spaces is also an important component of social well-being. Providing opportunities for community engagement allows for our spaces to be more welcoming to all Albertans, both new and established. Welcoming immigrants, the homeless, and otherwise marginalized individuals and groups into public space ensures our urban areas are open to all, and provides a space to seek respite and healing. Professor Catherine Hamel investigates how fear and past trauma impact new arrivals' experience of spaces in Alberta, and how architecture and public space can contribute to healing.<sup>84</sup> Similarly affecting has been the work of Professor Marc Boutin, who led the design of Poppy Plaza along Memorial Drive, which uses light and a material palette to evoke an emotive experience attuned to the memorialization of Calgary's military personnel.<sup>85</sup> Student work in the broad area of inclusive and engaging public space includes planning for ethnic diversity, and for queer space,<sup>86</sup> and proposing community services for immigrant women.<sup>87</sup> Related projects have explored the idea of the sacred in built environments in the search for cultural healing through design.<sup>88</sup> These projects act to raise the level of discourse around the importance of inclusive public space in Alberta, helping diverse groups to engage with a sense of place.

A particular type of public space related to well-being in the city is the park,<sup>89</sup> which provides access to fresh air and natural surroundings and

is a place for exercise and recreation. Designing parks that can be used by people of all cultures, ages, and physical abilities allows these spaces to be truly in the public good. First off, park areas must be conserved in developing communities so that citizens have equal access to salubrious green space. In the early 1970s, EVDS faculty members were central to the movement that preserved Calgary's Nose Hill as an enormous natural Prairie grassland park, the conservation of which has shaped the city's subsequent growth around and beyond Nose Hill. Throughout the faculty's history, EVDS students have also been greatly interested in the design of different types of urban parks. Among many examples across different eras, student teams proposed upgrades to the recreation facilities at the William Pearce Water Conservation Area along the Bow River;<sup>90</sup> the development of a waterfront park as part of the Heritage Canada Mainstreet Program for downtown revitalization in Peace River;<sup>91</sup> and a wildlife-management framework for Medicine Hat's urban parks.<sup>92</sup>

All of these projects are concerned with a healthy interface between the urban and natural spheres, referring to the physical and emotional benefits accessing nature as justification for planning and design decisions. Students also have worked on projects that posit the restorative aspects of gardening—for instance, through the implementation of community gardens, or the deployment of gardens as part of a therapy program for troubled youth.<sup>93</sup> Public parks and gardens contribute to citizens' well-being, but also to the health of the city as an ecological system.

People living in cities affect the landscape in several ways; EVDS research into healthy urban ecologies has long focused on waste and water management. Waste materials are generated every day by people across Alberta. Diverting garbage before it reaches landfills, and mitigating the effects of product packaging, are some of the ways EVDS faculty have sought to conserve the quality of the Calgary and Southern Alberta environment.<sup>94</sup> Student work on urban waste management has encompassed the following topics: reducing the garbage produced on the University of Calgary campus;<sup>95</sup> evaluating and improving upon Stony Plain's waste-management strategy;<sup>96</sup> and working toward a zero-waste framework in Calgary.<sup>97</sup> These projects look at waste and garbage in order to ask: How can we reduce, reformat, and adapt to new ways of disposing? A large contributor to landfills is construction and demolition waste produced by our ever-growing cities. Professor Josh Taron works in partnership with

the City of Calgary to track construction waste and to find novel alternatives to wholesale building demolition, which would assist in improving the sustainability of our building practices.<sup>98</sup>

Water is an essential resource for humans and the ecosystems. City water needs to be potable, as well as clean for animals, plants, and recreational uses. Urban water quality raises questions of cleanliness, supply, consumption, and stormwater management. Significantly, as Calgary's 2013 flood disaster demonstrated, the landscape also impacts the city in significant ways. The process of environmental design can allow us to develop solutions for how we plan cities and rebuild them after a crisis. Before disaster happens, planning can help mitigate potential harmful effects. In 2013, EVDS hosted the Make Calgary Resilient Symposium in cooperation with the Institute for Public Health. The speakers were international thought-leaders whose lectures and workshops generated ideas for making Calgary more prepared for, and adaptable to, natural disaster. The list of EVDS student projects on the theme of planning for water goes back several decades, and has focused on stormwater management within Calgary;<sup>99</sup> the implications of low-impact development in watersheds;<sup>100</sup> water-management planning in urban creeks;<sup>101</sup> and water quality and conservation strategies for specific sites.<sup>102</sup> Of course, as soon as we begin to consider resource management in our urban ecosystems we must think beyond the city. Water, wildlife, and other key issues for health and environmental design require a broader view as well—at the scale of the region.<sup>103</sup>

## Biome: Projects at the Regional and Ecosystem Scale

When human settlements endeavour to manage ecological systems, they necessarily begin planning at a regional scale. At this scale, EVDS projects extend to the non-urbanized areas of the province. While this is true for water management, it is equally so for other resources and species. The green spaces of urban parks often extend far into the countryside, as with Fish Creek or Elbow Valley.<sup>104</sup> Urbanization increases human contact with wildlife far outside municipal boundaries (and also within them). EVDS research has assessed the impact on, and proposed healthful solutions for, human interactions with regional environments. For example, a watershed or drainage basin is an area of land where surface water (rain, snow,

ice) converges to a point at lower elevation. In Alberta, our watersheds are our essential life-support systems, and managing them is important to our health, and the health of the other species. Urban development demands a lot of water, while water is also tied to the livelihood of agriculturalists.<sup>105</sup> A significant recent research project run by Professors Mary-Ellen Tyler and Mike Quinn has addressed water-planning science and policy in the Calgary region.<sup>106</sup> Students have proposed similar holistic approaches to regional water management, such as an irrigation plan using Calgary's secondary sewage effluent,<sup>107</sup> as well as various frameworks to improve and integrate land use and water management.<sup>108</sup>

As within cities, EVDS has been involved in the design of parks and recreation spaces at the regional scale. Regional park spaces connect the public with rural ecology, and often provide a way to preserve special areas of the landscape and wildlife habitat. These parks can offer opportunities for public education and interpretation about healthy environments. They also offer a multitude of healthy activities like hiking, canoeing, skiing, and snowshoeing. One of the challenges of designing regional recreation spaces is planning for different uses during summer and winter seasons. Going back several decades, students working on the theme of regional parks have proposed wildlife observation sites and facilities for Kananaskis Country, interpretive centres and trail designs to allow for education of the public on wildlife habitat, a hazardous-waste-management plan for Jasper National Park, and recreation plans to make regional parks accessible to commuters and locals alike, for numerous sites and seasons (see figure 13).<sup>109</sup> These proposals link the sustaining power of nature with the impact humans have on it—balancing development and conservation while promoting an understanding of healthy environments.

Whether inside or outside of parks, the general health of regional ecosystems must be monitored to help keep our life-support systems (and those of all species) in good working order. Monitoring ecological health and proposing improvements to the design of human interfaces with the environment have been significant research areas for EVDS.<sup>110</sup> The research associates with the faculty's former Miistakis Institute translated academic research and knowledge for practical application in land and resource management using geographic information systems (GIS) and other tools for tracking the conservation and human use of landscapes.<sup>111</sup> Professor Cormack Gates focused on conservation design, and how

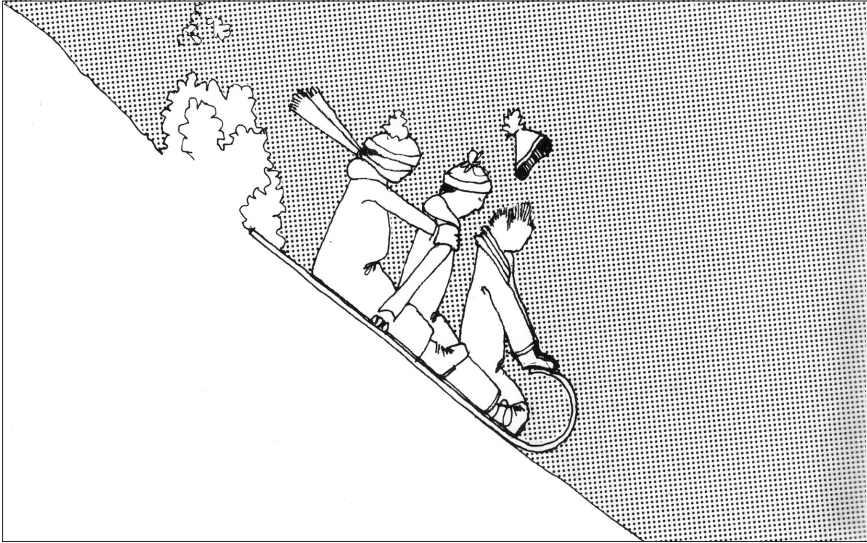


FIGURE 13. Winter recreation area proposed at Hastings Ridge, 1981.

restoring grassland and other natural areas affects the health of wildlife such as bison, pronghorn, and rattlesnakes.<sup>112</sup> Student work has focused on creating computer databases and public participation systems for monitoring ecological integrity,<sup>113</sup> restoring grassland in Southern Alberta,<sup>114</sup> and assessing the effect of resource extraction on habitat in Northern Alberta.<sup>115</sup> Projects that monitor and measure the cycles of environmental impact assist with targeting conservation actions.

Studying the holistic impact of how we develop resources such as oil, gas, and coal was for many years the focus of Professor Bill Ross, a pioneer in environmental impact assessment (EIA).<sup>116</sup> EIA is a process (like the design process) used to weigh the pros and cons of resource development before action is taken. The impact-assessment process can also be completed following development to determine if projects are causing unintended consequences to the local environment. Responsible resource development balances economic needs with the preservation of life-support systems like clean air, water, and soil. For instance, students conducted a coal-development impact study for the Nordegg/Rocky Mountain House area, to understand the social and economic impacts of resource

development there.<sup>117</sup> Recently, the Faculty of Environmental Design and Mount Royal University were awarded a research grant to investigate the landscape impacts of hydraulic fracturing development on surface water, acknowledging that quality of water will affect quality of human health.<sup>118</sup>

Finally, understanding and conserving the health of Alberta's wildlife is of central concern to EVDS research today. Tracking and monitoring the health of large fauna can tell us more broadly about the health and balance of the ecosystem. These animals are known as "indicator species," and Professor Marco Musiani uses tracking techniques with wolves and caribou to assess overall ecosystem health in Alberta.<sup>119</sup> As with EIA work, this knowledge can be used to inform development related to oil and gas, to ensure we don't overload the delicate balance of the ecosystem. Professor Paul Galpern works toward effective pollinator conservation, looking at how landscape context (i.e., human intervention) has influenced pollinator health and populations.<sup>120</sup> Another important aspect of EVDS research has been managing human-animal and animal-vehicular interactions for the health and safety of all parties. Student projects with this focus span beaver-management alternatives for an Alberta ranch,<sup>121</sup> modeling pronghorn antelope populations in Southern Alberta,<sup>122</sup> and minimizing human-wildlife interactions in high-traffic corridors.<sup>123</sup> Management projects such as these involve big data and tracking, using vigilance to monitor the state of the ecosystem, and proposing interventions when necessary.

## Conclusions

*The engagement of different minds and diverse ideologies in creative problem-solving becomes a unifying experiential medium for interdisciplinary training . . . oriented to developing an understanding of the systemic relationships among environmental constituencies or to suggesting innovative social and physical models for environmental change.*

—William Taylor Perks, "Architecture Manifesto," 1971<sup>124</sup>

The research and practice undertaken in the Faculty of Environmental Design highlights how Albertans can plan for and provide ergonomic objects, healthy buildings, inclusive spaces, and livable cities. Environmental design is an innovative and potent process the faculty has used to investigate and intervene in the complex, interdisciplinary, and sometimes wicked problems that we confront with increasing frequency in our society. Through design, we have seized opportunities to expand our thinking and forged new pathways or models for health and wellness in Alberta. At all scales, design is an iterative process that requires thoughtful refinement, rigorous scholarship, and sensitive fine tuning.

Over almost fifty years, EVDS has worked at multiple scales and contributed a wide array of solutions for keeping Albertans healthy. But designing and planning sustainable places that facilitate health is not just a local issue. The spheres of EVDS activity and influence have been—and still are—far greater than just Calgary and Alberta. Many of our faculty members and students have worked across the globe to help other nations tackle challenging health-and-welfare issues such as slums, disaster planning and recovery, and environmental protection. For instance, EVDS students have done significant research on disaster planning abroad, which can inform our practice in Alberta.<sup>125</sup> Affordable housing and homelessness are also issues that prove to be acute all over the world. In rapidly urbanizing places, there is often inadequate infrastructure in place to accommodate people in shelters. Informal settlements and temporary housing situations can happen for a number of reasons beyond economic and demographic imperatives, such as inadequate planning and policy, outdated legislation, and corrupt public administration.<sup>126</sup> Professors Sasha Tsenkova and Brian R. Sinclair work to identify and mitigate these challenges, and provide clear protocols and policy options for providing essential services like medicine and education to citizens who live in informal situations.<sup>127</sup> Recent student work on healthful housing and urban well-being around the world has spanned from Brazil to Morocco to the Johannesburg townships in South Africa.<sup>128</sup>

As we can glean from these examples, there are global connections across all scales, and these require an integration of research into a collective body of knowledge that informs and directs healthy policy and professional practice in design. Research, practice, and policy are often separate arenas. By eliminating the gaps between these spheres, EVDS has sought



to create a more holistic framework for transitioning the knowledge gained through research into effective environmental design practice. Orienting EVDS students to capture the essence of health and sustainability is a hallmark of education in the faculty. Undergraduate and graduate students learn there are many facets to health, and as a professional faculty we have taken responsibility for training the next generation of leaders who will design more sustainable societies. We facilitate research abroad, to learn from other global leaders in health and sustainability. Measuring and revising the impact that our spaces and places have on the health of humans and nature is an important approach that the Faculty of Environmental Design has been dedicated to since its founding, as shown by the wide spectrum of impressive projects described in this chapter. There is no question that our future research, teaching, and service will continue to tackle complex health and wellness issues in Alberta and beyond, related to the different yet interrelated scales of the environment: body, building, block, and biome. *Design matters!*

## NOTES

In April 2019 the school changed its name from the Faculty of Environmental Design to the School of Architecture, Planning and Landscape.

- 1 "Proposed Degree Programme and Curriculum for 1972–73," Faculty of Environmental Design Fonds, University of Calgary Archives.
- 2 Anthony W. Rasporich, *Make No Small Plans: The University of Calgary at Forty* (Calgary: University of Calgary, 2007), 42–5.
- 3 On the relationship between architectural design, building materials, and health, see for example David Monteyne, "Framing the American Dream," *Journal of Architectural Education* 58, no 1 (2004): 24–33.
- 4 Jennifer Minner and Jeffrey M. Chusid, "Time, Architecture, and Geography: Modelling the Past and Future of Cultural Landscapes," *APT Bulletin: The Journal of Preservation Technology* 47, no. 2/3 (2016): 49–58.
- 5 Thomas Walz, Georgiana Willenbring, and Lane deMoll, "Environmental Design," *Social Work* 19, no. 1 (1974): 38–46.
- 6 Avigail Sachs, "Architects, Users, and the Social Sciences in Postwar America," in *Use Matters: An Alternative History of Architecture*, ed. Kenny Cupers (New York: Routledge, 2013), 69–84 ; Charles Jencks, *The Language of Post-Modern Architecture* (New York: Rizzoli, 1984); David Harvey, *The Condition of Postmodernity* (Oxford: Blackwell, 1990).



- 7 Donald Worster, *Nature's Economy: A History of Ecological Ideas* (Cambridge: Cambridge University Press, 1994).
- 8 Ellen Morris, "Looking Back at Berkeley: Kahn in Context," *Perspecta* 28, no. 1 (1997): 34–9.
- 9 For comparison, see discussions regarding the study areas and master's programs between EVDS and the Faculty of Graduate Studies (2008 and 2010), in Environmental Design (EVDS), Faculty of Graduate Studies Fonds – File (2008, 2010), University of Calgary Archives: CA ACU ARC F0226-S0003-FL0009.
- 10 A defining article on the "wicked problem" in environmental design is Richard Buchanan, "Wicked Problems in Design Thinking," *Design Issues* 8, no. 2 (1992): 5–21.
- 11 Carl Steinitz, "Design is a Verb; Design is a Noun," *Landscape Journal* 14, no. 2 (1995): 188–200.
- 12 For comparison, see Brian Sinclair, "Design Communication Media: Building a Solid Foundation," *AWARD Magazine* 15, no. 1 (2001).
- 13 Interviews were conducted by Kaarin Piegaze-Lindquist and Barbara Dupuis in 2014–15.
- 14 See for example Ykje Piera, "Design Proposal for a Birthing Chair" (Master's Degree Project, University of Calgary, 1992); Ernest Baranieki, Tom Coffyne, Sue Fairburn, Vivian Luoma, Sylvia Nowlan, and Trish Willis, "The Ergonomic Analysis and Design of an Adjustable Microscope Stand" (EVDS 702 Project, University of Calgary, 1998); Carolyn Cork, Barbara Doyle-Frisch, Bruce Hanington, Becky Hooey, David Willoughby, and Meric Yildirim, "Ergonomic Analysis and Redesign of Patrol Car Interiors: The 1994 Chevrolet Caprice" (EVDS 702 Project, University of Calgary, 1994).
- 15 Barry Wylant, "Significance Beyond Functional Singularity," in *Enabling Solutions for Sustainable Living: A Workshop with Ezio Manzini*, ed. Enzo Manzini, Stewart Walker, and Barry Wylant (Calgary: University of Calgary Press, 2008), 31–6.
- 16 Piera, "Design Proposal for a Birthing Chair"; Baranieki et al., "The Ergonomic Analysis and Design of an Adjustable Microscope Stand"; Cork et al., "Ergonomic Analysis and Redesign of Patrol Car Interiors."
- 17 Wylant, "Significance Beyond Functional Singularity," 31–6.
- 18 Piera, "Design Proposal for a Birthing Chair"; Baranieki et al., "The Ergonomic Analysis and Design of an Adjustable Microscope Stand"; Cork et al., "Ergonomic Analysis and Redesign of Patrol Car Interiors."
- 19 Scott Wilkinson, "The Design of a Hand-Powered Vehicle for the Mobility Impaired" (Master's Degree Project, University of Calgary, 1992); Gregory Olsen, "Armrest-Based Assisted Chair Rise for the Elderly" (Master's Degree Project, University of Calgary, 1995).
- 20 Ron Wardell, "An Ergonomics Perspective on Safety in the Oilfield," in *Human Factors and Ergonomics Society Annual Meeting Proceedings* (Santa Monica, CA: Human Factors and Ergonomics Society, 1989), 999–1003.
- 21 Keith Rach, "Re-Design of a Neonatal Transport Incubator With Specific Attention to User Interface" (Master's Degree Project, University of Calgary, 2002).

- 22 Randy Gingera, "Designing For The Prostate Cancer Population: An Integrated Exercise and Social Support System" (Master's Degree Project, University of Calgary, 2005).
- 23 Tara Murray, "Affective Industrial Design: Understanding our Emotional Attachment to the Products We Love" (Master's Degree Project, University of Calgary, 2007).
- 24 For comparison, see Ron W. Wardell, "An Ergonomics Perspective on Safety in the Oilfield," *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* 33, no. 15 (1989): 999–1003.
- 25 Judith A. Leech, William C. Nelson, Richard T. Burnett, Shawn Aaron, and Mark E. Raizenne, "It's About Time: A Comparison of Canadian and American Time-Activity Patterns," *Journal of Exposure Analysis and Environmental Epidemiology* 12, no. 12 (2002): 427–32.
- 26 Wylant, "Significance Beyond Functional Singularity," 31–6.
- 27 Tang G. Lee, "Health Symptoms Caused by Molds in a Courthouse," *Archives of Environmental Health: An International* 58, no. 7 (2003): 442–6.
- 28 John Heintz, Cindy Meers, Satwinder Paul, Ed Rodger, and Bob Thornton, "A Centre for the Environmentallly Hypersensitive" (EVDS 702 Project, University of Calgary, 1987).
- 29 Bharat Harwani, "Design Optimization with Daylighting" (Master's Degree Project, University of Calgary, 2005).
- 30 Shelley Pearson, "Residential Electric Lighting: Explorations in Sustainable Product Design" (Master's Degree Project, University of Calgary, 1999).
- 31 Greg Beck, Robert Pritchard, John Scott, Barry Sullivan, Gary Sykes, and Terry Zdan, "Energy Efficient Townhousing for Calgary, Alberta" (EVDS 702 Project, University of Calgary, 1977).
- 32 See US Department of Energy, "Solar Decathlon 2017," <http://www.solardecathlon.gov/> (accessed 22 April 2017).
- 33 "Canada's Solar House Addresses Real Needs," *U of C Media Centre*, 30 September 2011, [https://www.ucalgary.ca/news/sept2011/solarhome\\_addresses\\_needs](https://www.ucalgary.ca/news/sept2011/solarhome_addresses_needs) (accessed 27 February 2019).
- 34 Michael J. Gestwick, Alaaeldin Kandil, and James A. Love, "Heating Plant Input–Output Efficiency in Two Cold-Climate Institutional Buildings With Condensing Hot Water Boilers," *Building Services Engineering Research & Technology* 35, no. 6 (2014): 634–52.
- 35 "The 2030 Challenge," *Architecture 2030*, [http://www.architecture2030.org/2030\\_challenge/the\\_2030\\_challenge](http://www.architecture2030.org/2030_challenge/the_2030_challenge) (accessed 22 April 2017).
- 36 Brian R. Sinclair, "Contemplating Change, Executing Transformation: Psychological Constructs and Behavioral Considerations in the Pursuit of Open Building," in *Long Lasting Building in Urban Transformation* (Beijing: Open Building International Congress, 2012), 211–20.
- 37 Branko Kolarevic and Vera Parlac, eds., *Building Dynamics: Exploring Architecture of Change* (New York: Routledge, 2015).

- 38 Mike Boyd, John Colless, Nancy Geisler, John Greffen, Dave McVean, Lauren Nickel, Ken Ziebarth, "Public Awareness of Efficient Energy Use" (EVDS 702 Project, University of Calgary, 1975).
- 39 Angus Culley, Richard Frederkind, Pat Mahaffey, Kathy Pomeroy, and Dellas Zaretsky, "Burton Creek Energy Conservation Centre: A Feasibility Study" (EVDS 702 Project, University of Calgary, 1977).
- 40 Kerri Blair, Linda Miller, Karen Roberts, Judy Seidel, and Christina Seidel, "A Controlled Environment Research-Farming Complex: A Waste Heat Utilization Alternative" (EVDS 702 Project, University of Calgary, 1990).
- 41 Matt Beck, "Net Zero Energy Housing for the Masses" (Master's Degree Project, University of Calgary, 2010).
- 42 Clare McDuff-Oliver, "Architectural Programming Study for the Alexandra Community Health Centre" (Master's Degree Project, University of Calgary, 1979); H. John Crate, "Wild Rose Health Centre: A Design Proposal" (Master's Degree Project, University of Calgary, 1983).
- 43 Mark A. Giovanetto, "In Search of Beauty and Perfection: Laser Eye Surgery Clinic" (Master's Degree Project, University of Calgary, 1995).
- 44 Joan Wagner, "Affirming Life: A Sanctuary for Palliative Care and Bereavement" (Master's Degree Project, University of Calgary, 1999); Monica Becher, "Hospice: A Place for the Dying" (Master's Degree Project, University of Calgary, 1999); Jason Murdy, "From Down Here: Architecture's Role in a Paediatric Medical Setting" (Master's Degree Project, University of Calgary, 2001); Georgia Houston, "Design to Reduce Negative Emotions: Improving Children's Experience of the Dental Office" (Master's Degree Project, University of Calgary, 2007).
- 45 Jonathan Hein, "Long Term Care: A Place to Belong" (Master's Degree Project, University of Calgary, 2008).
- 46 Laura McMurran, "Death, Bereavement & Architecture for Healing" (Master's Degree Project, University of Calgary, 2011).
- 47 Kevin Beingessner, Stephen Feist, Mark Fitzgerald, Beate Jansson, Rob McManus, Dan Plamondon, Bruce Stratton, and Bill Woodward, "Human Aspiration Design Criteria: Bridport Accommodation Arctic Pilot Project" (EVDS 702 Project, University of Calgary, 1980).
- 48 Carol E. Shortt, "Providing Housing for Dependent Seniors in Native Communities" (Master's Degree Project, University of Calgary, 1984).
- 49 Caelin Cameron, "Restructuring Home: Culturally Sensitive Design Solutions For Northern Canadian Indigenous Communities" (Calgary: University of Calgary, 2011).
- 50 Edward C. Lesage, Jr. and Melville L. McMillan, "Alberta," in *Foundations of Governance: Municipal Government in Canada's Provinces*, ed. Andrew Sancton and Robert Young (Toronto: University of Toronto Press, 2009), 384–452.
- 51 Colin Forsyth Tennent, "A Self-Contained Senior Citizen Housing Design" (Master's Degree Project, University of Calgary, 1980).

- 52 F. Craig, V. Haines, D. Lloyd, M. Meade, S. Novak, and M. Palmer, "Day Centre Concept: A Support System for Rural Senior Citizens" (EVDS 702 Project, University of Calgary, 1987).
- 53 Merinda Jo-Ann Conley, "An Interactive Design Approach to Housing for the Elderly" (Master's Degree Project, University of Calgary, 1991).
- 54 Blair Marsden, "Retirement in a Rural Landscape: A Housing Option for Rural Seniors" (Master's Degree Project, University of Calgary, 2007).
- 55 Steven Friesen, "Environmental Design and Healthy Aging: Evaluating a New Supportive Living Facility" (Master's Degree Project, University of Calgary, 2012).
- 56 David Bellows, Anne Lemco-Austin, Mona Kawano, Vel Cunningham, Harold Stanley, and Austin French, "Group Homes for Multi-Handicapped Adults: The Calgary Context" (EVDS 702 Project, University of Calgary, 1983); Amanda Brinda, "Housing for Adults with Fetal Alcohol Spectrum Disorder" (Master's Degree Project, University of Calgary, 2007).
- 57 Gerlad Jay Finger, "Issues in Barrier-Free Design: A Case Study of Accessibility for the Physically Disabled at the University of Calgary" (Master's Degree Project, University of Calgary, 1978).
- 58 Gerlad W. Bachmayer, "Implementing a Public Transportation Policy for the Physically Disabled" (Master's Degree Project, University of Calgary, 1979).
- 59 Pierre C. Charbonneau and Sheila Smith, "Barrier-Free Transportation for Red Deer" (EVDS 702 Project, University of Calgary, 1983).
- 60 Frederick Steiner, Mark Simmons, Mark Gallagher, Janet Ranganathan, and Colin Robertson, "The Ecological Imperative for Environmental Design and Planning," *Frontiers in Ecology and the Environment* 11, no. 7 (2013): 355–61.
- 61 Beverly A. Sandalack, Francisco G. Alaniz Uribe, A. Eshghzadeh Zanjani, Allan Shiell, Gavin R. McCormack, and Patricia K. Doyle-Baker, "Neighbourhood Type and Walkshed Size," *Journal of Urbanism* 6, no. 3 (2013): 236–55.
- 62 Gill Grant, "Exploring the Influence of New Urbanism in Community Planning Practice," *Journal of Architectural and Planning Research* 20, no. 3 (2003): 234–53.
- 63 Nick Agnew, Bart Deeg, Trudy Kamphuis, Hans Kerkovius, Nancy Luxford, and Joe Payne, "Bike and Ski on Campus" (EVDS 702 Project, University of Calgary, 1975).
- 64 Robert Crane, David Harper, Michael Kloppenburg, Lindiwe Kumalo, Doug Merrill, and Judy Otton, "A New Focus for Banff" (EVDS 702 Project, University of Calgary, 1981).
- 65 Nilanthi Bandara, Kerri Blair, Marcel Ernst, Karen Roberts, and Christina Seidel, "A Recreational Bicycle and Pedestrian Path Network Design for the Town of Strathmore" (EVDS 702 Project, University of Calgary, 1990).
- 66 Keath R. Parker, "An Examination of Pathway Policy and Systems: Case Study of Calgary, Alberta, and Surrey, BC" (Master's Degree Project, University of Calgary, 1999).
- 67 Jonathan Lea, "Pathway to Safety: Making Calgary's Pathway Network Safer for Multiple Uses" (Master's Degree Project, University of Calgary, 2007).

- 68 David Mahalek, "Integrating Bicycles with Public Transit" (Master's Degree Project, University of Calgary, 2010).
- 69 Herbert J. C. Emery and Ronald D. Kneebon, "Socialists, Populists, Resources and the Divergent Development of Alberta and Saskatchewan," *Canadian Public Policy* 34, no. 4 (2008): 419–40.
- 70 Noel Keough, "Sustaining Authentic Human Experience in Community," *New Formations* 64 (2008): 65–77.
- 71 James Bell, Margaretha Burnett, Diane Hooper, Kent McQueen, and Lorne Roder, "Action Plan for a Healthy Hillhurst-Sunnyside" (EVDS 702 Project, University of Calgary, 1989); Mayja Embleton, "The University of Calgary—Community Safety Audits" (Master's Degree Project, University of Calgary, 1996).
- 72 Allison Miller, "Urban Form in High Collision Locations" (Master's Degree Project, University of Calgary, 2010).
- 73 Lisa Kahn, "The Geography of Crime: Street Prostitution in Calgary's Inner City" (Master's Degree Project, University of Calgary, 2005).
- 74 Emery and Kneebon, "Socialists, Populists, Resources and the Divergent Development of Alberta and Saskatchewan," 419–40.
- 75 John R. Graham, Christine Walsh, and Beverly A. Sandalack, *Homeless Shelter Design: Considerations for Shaping Shelters and the Public Realm* (Calgary: Detselig Press, 2008); Natasha Kuzmak, "Barriers to Successful Homeless Shelter Siting In Calgary: An Analysis of Policy, Process and Politics" (Master's Degree Project, University of Calgary, 2009).
- 76 Brian K. A. Piller, "A Youth Emergency Shelter for Calgary: A Design Proposal" (Master's Degree Project, University of Calgary, 1989).
- 77 Robert T. D. Scott, "Comfort for the Voiceless" (Master's Degree Project, University of Calgary, 2000).
- 78 Christine Arthurs, "Planning for Second Stage Shelter Housing" (Master's Degree Project, University of Calgary, 1996).
- 79 Tim J. Creelman, "Home Ownership Affordability in Calgary: Now a Middle Class Problem" (Master's Degree Project, University of Calgary, 1991); Melissa Witwer, "Affordable Rental Construction in Calgary" (Master's Degree Project, University of Calgary, 2008).
- 80 Nomagugu Mgijima, "The Forest Lawn Holdings: An Assessment of a Low-Income Housing Project" (Master's Degree Project, University of Calgary, 1992).
- 81 Kathryn Tonelli, "Affordable Homeownership: Breaking Down the Barriers" (Master's Degree Project, University of Calgary, 2006).
- 82 Jessica Karpát, "The Use of Public-Private Partnerships to Attain Affordable Rental Accommodation in the City of Airdrie" (Master's Degree Project, University of Calgary, 2007).
- 83 Justin Rebello, "Strathmore Affordable Housing Strategy" (Master's Degree Project, University of Calgary, 2010).

- 84 Catherine Hamel, "Repurposing With A Vengeance: A Dance of Restrained Acts Towards Justice," in *Architecture and Justice: Judicial Matters in the Public Realm*, ed. Nicholas Temple and Renee Tobe (London: Ashgate Publishing, 2012), 203–13.
- 85 "Poppy Plaza," City of Calgary, 2018, <http://www.calgary.ca/CSPS/Parks/Pages/Locations/NW-parks/Poppy-Plaza.aspx> (accessed 28 February 2015).
- 86 H. S. George Chahal, "Planning for Ethnic Diversity" (Master's Degree Project, University of Calgary, 2006); Titania Lam, "Forest Lawn and Multicultural Planning" (Master's Degree Project, University of Calgary, 2008); Barney Michalchuk, "Queer Space: The Tom of Finland Museum & Archive" (Master's Degree Project, University of Calgary, 1995).
- 87 Mit Man Kitty Mok, "Community Services for Immigrant Women in Forest Lawn" (Master's Degree Project, University of Calgary, 1994).
- 88 Christie Grayson, "Journey to the Sacred Geometry: Architecture as a Form of Cultural Healing" (Master's Degree Project, University of Calgary, 2007); Erik Isfeld, "Contemporary Sacredness: Searching for Spirit Through an Urban Retreat" (Master's Degree Project, University of Calgary, 2007); Robert A. Birch, *People, Place, and Spirit: Pursuing the Sacred in the Design of Built Environments* (Calgary: University of Calgary Press, 2014).
- 89 H. V. ("Viv") Nelles, "How Did Calgary Get Its Parks?" *Urban History Review/Revue d'histoire urbaine* 34, No. 1 (2005): 28–45.
- 90 Keith Benjamin, Lawrence Franklin, Colleen McCracken, Carl Raynard, and Peter Zuba, "The William Pearce Water Conservation Area: A Recreational Enhancement" (EVDS 702 Project, University of Calgary, 1981).
- 91 Simonetta Acteson, Vern Albush, Thomas Enters, Diana Evanyshyn, Sandra Millar, Laurie Munro, and Frank Soda, "Peace River Waterfront Park" (EVDS 702 Project, University of Calgary, 1987).
- 92 Neil Bryan, Bridget Couban, Laura Downey, Paul Guenther, Iris Kit Li, Chen Peng, Robin Reese, Shana Sundstrom, Liisa Tipman, and Angela Vincent, "An Urban Wildlife Management Planning Framework for the City of Medicine Hat" (EVDS 702 Project, University of Calgary, 2005).
- 93 Taryn Hayes, "Community Gardens" (Master's Degree Project, University of Calgary, 2010); Judy Larkin, Robert Scott, and Jack Van Camp, "Hull Home: Concepts for the Garden Program" (EVDS 702 Project, University of Calgary, 1975).
- 94 Neil D. Bryan and Tang G. Lee, "Ecoburb: A Sustainable Development for East Calgary" (EVDS 702 Project, University of Calgary, 2017).
- 95 Enonche Ameh, Noelle Blair, John Mancenido, and Aurelie Tu, "Waste Minimization and Resource Conservation in the Food Court: Macewan Student Centre, University of Calgary" (EVDS 702 Project, University of Calgary, 1993).
- 96 Mitchell Comb, "Evaluating the Town of Stony Plain's Recycling and Waste Management Strategic Plan Process" (Master's Degree Project, University of Calgary, 2005).

- 97 Leita Martin, "Toward a Zero Waste Framework in Calgary" (Master's Degree Project, University of Calgary, 2010).
- 98 Joshua Taron, "Interactive Hemostasis Modeling in Urban Network Design," *International Journal of Architectural Computing* 7, no. 3 (2009): 375–87.
- 99 William Ashton, Oleh Maruschak, Cole Pederson, Randy Wilson, and Jim Wright, "Stormwater Management and Land Use Planning for Southeast Calgary" (EVDS 702 Project, University of Calgary, 1980).
- 100 Lesley Kalmakoff, "Implementation of Low Impact Development on Commercial and Industrial Developments in the Nose Creek Watershed" (Master's Degree Project, University of Calgary, 2007).
- 101 Danielle Koleyak, "Protection of Ecological Goods and Services Through Water Management Planning: A Case Study of the Nose Creek Watershed, Alberta" (Master's Degree Project, University of Calgary, 2012).
- 102 David Hill, Deborah Mercer, Anton Pojasok, and Cecil Bimke, "Rockyford Dam Site Study" (EVDS 702 Project, University of Calgary, 1991); Dawna Cerney, Ken Roberge, Karen Scoulding, D. W. Von Kuster, and Kevin Wong, "Water Saving Landscaping Strategies for Lethbridge" (EVDS 702 Project, University of Calgary, 1997).
- 103 Jim Ellis, ed., *Calgary—City of Animals* (Calgary: University of Calgary Press, 2017).
- 104 George Colpitts, "Fish and Game Conservation in Alberta, 1907–1930," *Alberta History* 42, no. 4 (1994): 16–26.
- 105 Ellis, *Calgary—City of Animals*, 1–9.
- 106 Mary-Ellen Tyler, "Managing Biosocial Systems in 2010," *Environments* 36, no. 3 (2009): 91–5.
- 107 Jack Bereziuk, Jack Elliott, Mike Jackson, Tony O'Regan, and Randall Warren, "Effluent Irrigation: A Possible Alternative to River Discharge for Calgary's Effluent" (EVDS 702 Project, University of Calgary, 1983).
- 108 Julie Cecchetto, "Echohydrology: A Framework to Improve Integrated Land Use and Water Management" (Master's Degree Project, University of Calgary, 2011); Matthew Knapik, "Searching for Ecological Connectivity in Calgary's Suburbs" (Master's Degree Project, University of Calgary, 2012).
- 109 P. L. Clarkson, W. F. G. Doesburg, R. G. Glaholt, D. H. Moore, and J. C. M. Patterson, "Wildlife Observation Sites and Facilities for Kananaskis Country" (EVDS 702 Project, University of Calgary, 1982); Ted deJong, Dave Dougherty, Ray Lampart, Joanne Pickard, and Rudy Singer, "Hastings Ridge: A Concept for Outdoor Winter Recreation in the Municipality of Crownsnest Pass" (EVDS 702 Project, University of Calgary, 1981); C. A. Boyle, W. D. Lock, H. M. Sheehan, L. R. Mort, W. E. R. Thorne, and J. Vaillancourt, "Caring for the Future: Managing Hazardous Waste in Jasper National Park" (EVDS 702 Project, University of Calgary, 1988); Judy Campbell, Douglas Collister, Mark Crisp, Jennifer Earle, Jana Kotaska, and Michael Van Bakel, "Canmore Flats Natural Area: Conceptual Desing of an Interpretive Centre and Trail" (EVDS 702 Project, University of Calgary, 1992); Robert Culver, Suresh Kandeswamy, Karen Oldershawn, Jeff Richert, Mike Ruskowski, Sherry Sian, Peter Siegfried, "A Proposal of a Watchable Wildlife Site at Lac des Arcs" (EVDS 702 Project, University of Calgary, 1997).

- 110 Tyler, "Managing Biosocial Systems in 2010," 91–5.
- 111 Michael S. Quinn and Greg Chernoff, *Mountain Biking: A Review of the Ecological Effects* (Calgary: Miistakis Institute, 2010).
- 112 Cormack Gates, *Fencing Guidelines for Bison on Alberta Public Lands With Wildlife and Access in Mind* (Calgary: University of Calgary Press, 2006). Publication based on a multi-stakeholder design process.
- 113 Erin Bradley, Kasey Clipperton, Michelle DeLaronde, Heather Galbraith, Neil Gilson, Sarah Hamza, Suresh Kandaswamy, Lois Pittaway, Theresa Szymanis, and Andrea West, "The Ann and Sandy Cross Conservation Area: A System for Monitoring Ecological Integrity" (EVDS 702 Project, University of Calgary, 1997); Jennifer E. Dubois, "Community Based Ecological Monitoring—Process and Practice With a Southwest Alberta Ranching Community" (Master's Degree Project, University of Calgary, 2006).
- 114 Peggy Ann Desserud, "Restoration of Rough Fescue Grassland on Popelines in Southwestern Alberta" (Master's Degree Project, University of Calgary, 2006).
- 115 Jacqueline Redburn, "Wood Bison (*Bison bison athabasca*) Foraging Habitat Assessment in Northern Alberta Boreal Mixedwood Clearcuts" (Master's Degree Project, University of Calgary, 2007).
- 116 G. Hegmann, C. Cocklin, S. Creasey, S. Dupuis, A. Kennedy, L. Kingsley, W. Ross, H. Spaling, and D. Stalker, *Cumulative Effects Assessment Practitioners Guide* (Ottawa: Canadian Environmental Assessment Agency, 1999).
- 117 Mary Axworthy, Michael Fox, Patrick McMahon, Anna Parkinson, Mitchell Press, Joan Stapleton, and Robert Swart, "Nordegg—Rocky Mountain House Coal Development Impact Study" (EVDS 702 Project, University of Calgary, 1976).
- 118 "EVDS Professor's Team Wins Major Environmental Research Grant," Faculty of Environmental Design, <https://evds.ucalgary.ca/news/evds-professors-team-wins-major-environmental-research-grant> (accessed 22 April 2017).
- 119 Marco Musiani, Luigi Boitani, and Paul Paquet, eds., *The World of Wolves: New Perspectives on Ecology, Behaviour and Management* (Calgary: University of Calgary Press, 2010).
- 120 "Pollinator Conservation," Galpern Lab Webpage, <http://ecologics.ucalgary.ca/lab/science/pollinator-conservation/> (accessed 22 April 2017). See also Jeremy T. Kerr, Alana Pindar, Paul Galpern, Laurence Packer, Simon G. Potts, Stuart M. Roberts, Pierre Rasmont, Oliver Schweiger, Sheila R. Colla, Leif L. Richardson, David L. Wagner, Lawrence F. Gall, Derek S. Sikes, and Alberto Pantoja, "Climate Change Impacts on Bumblebees Converge Across Continents," *Science* 349, no. 6244 (2015): 177–80.
- 121 Nedzad Ajanovic, Valerie Barnes, Chris Finley, and Nicole Nelles, "Beaver Management Alternatives for Saddle and Sirloin Acres" (EVDS 702 Project, University of Calgary, 1996).
- 122 Katherine A. Sheriff, "Modeling Temporal and Spatial Variation in Pronghorn Antelope Population Dynamics in Southern Alberta in Relation to Environmental Gradients" (Master's Degree Project, University of Calgary, 2006).



- 123 Jessica E. Kent, "Human Dimensions of Wildlife Crossing Structure Management: A Case Study in the South Canmore Corridor" (Master's Degree Project, University of Calgary, 2005); Adam Martinson, "Modeling Road Mortality of Prairie Rattlesnakes and Bullsnares in Alberta" (Master's Degree Project, University of Calgary, 2009).
- 124 "Architecture Manifesto," (1971), Faculty of Environmental Design Fonds, University of Calgary Archives.
- 125 Shalisha Senkow, "Post-Disaster Reconstruction in Coliumo, Chile" (Master's Degree Project, University of Calgary, 2012); Anahita Daniali, "A Conceptual Framework for Vulnerability/Capacity Assessments Before Disaster Strikes" (MEDes Thesis, University of Calgary, 2013).
- 126 Michael M. Atkinson, "Discrepancies in Perceptions of Corruption, or Why Is Canada So Corrupt?" *Political Science Quarterly* 126, no. 3 (2011): 445–64.
- 127 Sasha Tsenkova, "Informal Settlements in Post-Communist Cities: Diversity Factors and Patterns." *Urbani Izziv* 21, no. 2 (2010): 73–84; Brian R. Sinclair, "Dislocation, Disconnection, Dilemma: Exploring Urban/Rural Disparity in Contemporary Mongolia," in *Beyond Architecture: New Intersections and Connections*, ed. David Rockwoog and Marja Sarvimaki (Honolulu: University of Hawaii Press, 2014), 201–14.
- 128 Giovana Beltrao, "Seeing a Favela Environment Handbook: A Tool for Internally Driven Participatory Favela Upgrading" (Master's Degree Project, University of Calgary, 2007); Kenan Handzic, "Failed Formalization in the Face of Successful Slum Upgrading: An Analysis of the Favela Bairro Program in Rio de Janeiro, Brazil" (Master's Degree Project, University of Calgary, 2008); Zachary Alaoui, "Informal Settlement Intervention in Morocco: Moving Forward" (Master's Degree Project, University of Calgary, 2009); Alison Grittner, "The Victoria Mxenge: A Case Study Exploring Gender, Shelter & Design" (MEDes Thesis, University of Calgary, 2012).



## The University of Calgary Faculty of Veterinary Medicine: At the Interface of Animal and Human Health

*Alastair Cribb*

The relationship between humans and animals has evolved from one focused on animals primarily as a source of food and transportation to a more complex one that involves our stewardship role on earth, the emergence of infectious diseases transmitted from animals to humans, and improved physical and mental health through pet ownership, to list but a few diverse areas.<sup>1</sup> Veterinary medicine and the veterinary profession have also evolved to match this changing relationship. The interface of animal and human health, existing in the environment that we all share, is often portrayed as a triangle.<sup>2</sup> However, as our knowledge has increased and our societies have changed, the relationship between human and animal health is recognized as being much more complex than a two-dimensional triangle can convey. Human well-being remains highly dependent on animal health, whether it be animals serving as a source of emerging disease or animals providing the economic and nutritional foundation for a healthy lifestyle. On the flip side, human activities influence animal health, whether it be how we care for and use domestic animals or our impact on wild populations through changes in the environment.<sup>3</sup>

It was the interactions between animal and human health that led the Alberta government to announce in 2004 that it was supporting the

establishment of the University of Calgary Faculty of Veterinary Medicine (UCVM). Established with the intent of graduating students who would serve rural Alberta, support its food-animal industries and research communities, conduct research at the animal-human interface, and support veterinary diagnostics, UCVM was approved by the University of Calgary Board of Governors in June 2005.<sup>4</sup> The work of building the program began in earnest in 2006. The first students entered the doctor of veterinary medicine (DVM) program in 2008, the same year that the first graduate student completed their degree under the supervision of a UCVM faculty member. This chapter briefly describes the foundation and growth of UCVM, highlighting education, research, and service activities at the animal-human interface.

While there had been talk of a new veterinary education program in Alberta in 2002 to supplement the existing program at the Western College of Veterinary Medicine in Saskatoon,<sup>5</sup> there was a significant shift when the first case of bovine spongiform encephalopathy (BSE) was discovered in a dairy cow in Alberta in May 2003. The discovery of BSE devastated the province's cattle industry.<sup>6</sup> The impact was swift and severe, ultimately costing the province \$6 billion dollars in economic losses. The potential human health impacts of BSE led to a loss of major export markets and the need to impose rigorous standards on the cattle industry.<sup>7</sup>

BSE was not the only disease with animal-human health links in the news that year. Severe acute respiratory syndrome (SARS) hit Toronto and Vancouver in early 2003. A potentially fatal disease, the SARS virus, identified and sequenced in Canada, was determined to be a coronavirus believed to have originated in civet cats in the Far East.<sup>8</sup> In July 2003, West Nile virus was confirmed in Alberta. First described in North America in the eastern United States, it had been slowly making its way across the continent. Highly pathogenic avian influenza H5N1 ("bird flu") was also in the news in 2003. Although the bird flu had first appeared in 1997 in Hong Kong, it re-emerged in 2003. In addition, H7N7 caused human disease in the Netherlands in April 2003. H5N1 subsequently swept through Asia and parts of Europe.<sup>9</sup> The public was once again alerted to the human health consequences of animal disease.

Politicians were now receptive to the need for understanding the important links between animal and human health. Lyle Oberg, provincial minister of learning, and Shirley McClellan, minister of agriculture, were

among the first politicians in Alberta to recognize the need for an increase in veterinarians who were well educated in production animal health, public health, and comparative biomedical research, and for veterinarians prepared to work in rural Alberta. This “new” recognition of the importance of animal-human health interactions, combined with the previously identified need for veterinarians able to serve the evolving production animal industries and rural Alberta, was important in the development of a veterinary college in the province.<sup>10</sup>

Not that a link between veterinary and human medicine was new. Veterinary education in Canada has had a strong link with human medicine from its early days. For example, renowned Canadian physician Sir William Osler (1849–1919) was a giant of human medicine, celebrated for his contributions to the advancement of medical education.<sup>11</sup> He was also one of the first and strongest proponents of comparative medicine in Canada. While teaching at McGill University, he lectured in both the medicine and veterinary medicine programs, and encouraged the participation of veterinary students in medical courses (and vice versa).<sup>12</sup> Ultimately, then, the proposal for a faculty of veterinary medicine that was closely aligned with a faculty of medicine had a precedent in Canada.

Lyle Oberg, with the backing of then premier Ralph Klein, was to become the primary champion of the veterinary college in the province. As he explored the options, he became more convinced of the need for veterinarians to be able to support Alberta industries and research. In 2003, a veterinary program was not on the University of Calgary’s agenda, but animal health certainly was. Many scientists and clinicians in the U of C Faculty of Medicine were conducting research that relied on animal models of disease or were directly relevant to animal health. The new Bachelor of Health Sciences Program was being launched and faculty members had noted a strong interest in animal-health-related research topics among students being recruited to the program. So, when Dr. Grant Gall, then dean of the Faculty of Medicine, met with Oberg to discuss educational programs, he was receptive when the topic of animal health was raised.<sup>13</sup>

The Faculty of Medicine led a proposal from the University of Calgary to be the home of a new veterinary college in Alberta. The DVM program initially proposed was modelled on a hybrid of the bachelor of health sciences and the medical degree programs. A three-year clinical presentations curriculum, with specialized streams in production animal/

equine, eco-health and public health, and investigative medicine, was envisioned.<sup>14</sup> Medical faculty would teach the basic science courses, many in combined classes with medical students. The program would capitalize on existing infrastructure and use a distributed veterinary teaching hospital model for clinical education. There would be a heavy research focus, with particular attention given to issues at the interface of animal and human health.<sup>15</sup> Although there would be many changes as the program developed, the foundation of a faculty of veterinary medicine with the link between animal and human health at the core of its education and research programs was set.

The public announcement was made in August 2004. When U of C president Harvey Weingarten sent a notice out to the university community on the morning of the announcement he captured the key concepts:

Why was the argument for a vet school in Calgary so compelling and persuasive? Among other reasons, our plan called for us to link animal health education and research with the current extensive human health research and education initiatives within the Faculty of Medicine. The integration of human and animal health is perceived by experts to be where the animal health and veterinary medicine worlds are heading and our proposal puts us immediately at the forefront of such initiatives.<sup>16</sup>

This was echoed in the formal press release, which led off with the following paragraph:

The Alberta government is establishing a new leading-edge veterinary medical school that will put the province at the forefront of research into animal diseases and food supply safety. This unique veterinary school will provide research into the detection, containment and eradication of diseases that can spread from species to species and affect humans, and prepare veterinary medical practitioners and researchers focused on food supply safety. The school will also specialize in producing large-animal veterinarians to address shortages of these types of specialists in the province.<sup>17</sup>

Speaking on behalf of the Alberta Veterinary Medical Association, president-elect Danny Joffe provided the following:

Our Association supports an enhanced veterinary curriculum that meets the long term needs of Albertans from both a public health and animal health and welfare perspective. We look forward to working collaboratively with experts in the field to ensure a new college does just that.<sup>18</sup>

Ultimately, the U of C Board of Governors approved a proposal in June 2005 to establish the Faculty of Veterinary Medicine with a directive that it would be research-intensive, with the primary focus on production animal medicine and research and on the interface of animal and human health. The expected characteristics of the students completing the program were laid out as follows:

- Graduates will have a general veterinary education with an emphasis in the areas defined by one of the three streams.<sup>19</sup>
- Graduates will have sufficient knowledge of basic and clinical sciences to enter into general veterinary practice.
- Graduates will have the clinical skills necessary to perform all procedures commonly encountered in general veterinary practice. In addition, they will have greater facility with the procedures encountered in the areas of practice encompassed by one of the three streams.
- Graduates will have sufficient understanding of the basic sciences related to veterinary medicine to enter into graduate study in an area related to animal health broadly defined.

- Graduates will have an understanding of the relationship between veterinary practice and research, human health, and the environment. They will appreciate the unique knowledge and skills that veterinary medicine offers society in these areas.<sup>20</sup>

The faculty's research and graduate education programs were also to focus on the environment-animal-human health interface, creating new knowledge and finding solutions. This would then position Alberta as a global leader in the development of solutions to animal-health-derived problems, which in turn influence both human health and economic well-being. The vision statement adopted by the new faculty, "Bringing innovation and community together to advance animal and human health," confirmed this commitment.

The sentiment encapsulated in the vision statement was also incorporated in the mission of UCVM, along with the commitment to excellence in education, clinical service, and research in the key areas of the program:

The Mission of UCVM is to meet the veterinary, animal, and public health needs of Alberta through:

- excellence in delivery of a comprehensive undergraduate veterinary medical education, emphasizing production animal health, ecosystem and public health, equine health and investigative medicine;
- excellence in clinical, diagnostic and professional teaching and service, in collaboration with our partners in the Distributed Veterinary Learning Community;
- excellence in the creation and distribution of new knowledge through research, graduate veterinary education, and continuing education in animal health, disease, and welfare, and its relation to human health.



- Our education, research and service activities will contribute to the promotion and protection of animal and human health and welfare in Alberta, Canada and internationally.<sup>21</sup>

## University of Calgary Faculty of Veterinary Medicine and “One Health”

The origins of UCVM, as described above, are firmly rooted in the concept that the animal-human-environment health interface is important. Comparative medicine, zoonotic disease, and public health have long been a foundation of veterinary education, as espoused by Sir William Osler and many others. The importance of managing zoonotic diseases through control in animals has been an important part of veterinary practice. In the last fifteen years, however, the recognition that approximately 60 per cent of human infectious diseases and 75 per cent of emerging and re-emerging infectious diseases have their origin in the animal kingdom has once again raised the profile of animal-human health interactions.<sup>22</sup> This recognition, combined with other global changes, contributed ultimately to the re-framing of comparative medicine and public health under the banner of “One Health.”<sup>23</sup> One Health is a broad concept that captures many different aspects of the animal-human interface. One accepted definition is “the collaborative efforts of multiple disciplines working locally, nationally, and globally, to attain optimal health for people, animals, and our environment.”<sup>24</sup> This definition emphasizes the professional relationships and interactions that are required to address complex issues. In a recently published textbook of One Health case studies by UCVM members, Susan Cork, David Hall, and Karen Liljebjelke defined One Health “as a transdisciplinary approach to the sustainable management of complex health problems arising from the interaction of animals, humans and their environment.”<sup>25</sup> This approach focuses, too, on the integration across disciplines, with a clear focus on solving a complex problem. For some, it is only One Health if it involves all three components: animals, humans, and the environment. For others, anything that transcends the boundaries of veterinary or human medicine is One Health, including comparative biomedical research and the exchange of knowledge across

the clinical application or practice of veterinary and human medicine. To veterinarians, the idea that animal health is important for human health is not new, and the focus at UCVM has been on this interface in its many forms, without trying to constrain it under a particular label.

## The Educational Program

The many facets of the link between animal and human health are highlighted throughout the DVM program. Students are challenged to explore the interface of animals, people, and social and physical environments, as well as policies and programs to protect and promote health. As the principles of comparative medicine and One Health are considered foundational in the veterinary community, they are addressed in many different courses, but there are some courses specifically dedicated to highlighting these areas.<sup>26</sup> For example, in the first year of the program “Animals, Health and Society” (Veterinary Medicine 323) explores the role that veterinarians play in promoting animal and human health through animal health management. It is organized around an ecological framework that explores the interaction of ecological, medical, environmental, and social factors that influence health and welfare in animals and their contribution to human health. The focus of the class is how to think about health in the practice of veterinary medicine and to discover ways that diseases can be prevented and health can be promoted.<sup>27</sup> It shows first-year veterinary students that studying the determinants of health residing at the interface of people, animals, and their shared environment supports healthy human-animal relations. DVM students are expected to be able to recognize the primary determinants of health influencing the system and/or species of concern, and how individuals, populations, and environments interact to affect health at individual and population levels. They should develop communication skills, intellectual acumen, leadership, collaborative skills, and clinical skills to work in a multi-disciplinary team to develop and implement solutions to complex problems that impact animal and human health. They need to understand the roles and responsibilities of veterinarians in animal and public health (locally and globally) and the responsibilities of other agencies, individuals, or governments.<sup>28</sup> Zoonotic diseases are a core competency of veterinarians, but the impact of animal health on human health is much broader, and so is the role of

the veterinarian. This is reflected in the expected educational outcomes for students in the program.

## Research Programs at the Animal-Human Health Interface in the University of Calgary Faculty of Veterinary Medicine

A fundamental premise for creating a veterinary college that would highlight and focus on the animal-human health interface was that it would facilitate and embrace a close association between animal- and human-health researchers. To facilitate the interactions between researchers in the Faculties of Medicine and Veterinary Medicine, the decision was made to physically integrate and intercalate the two programs on the Foothills Campus.<sup>29</sup> Although the Faculty of Veterinary Medicine would ultimately build a unique clinical teaching and animal research centre at the Spy Hill Campus (the Clinical Skills Building), 85 per cent of its faculty and staff were originally based at the Foothills Campus. The goal was to bring researchers with similar interests (e.g., infectious disease, stems cells, and regenerative medicine) into physical proximity, thereby encouraging informal interactions, regardless of their home faculty.<sup>30</sup> Many faculty members received adjunct or joint appointments in the sister faculty and many UCVM researchers became formally affiliated with one of the seven health research institutes in the Faculty of Medicine. From comparative biomedical research that sets the foundation for applied, population, and clinical research in human and veterinary medicine, to clinical research that directly addresses issues of importance in animal and human health, UCVM members' contributions to advancing and addressing human health in Alberta and beyond have been impressive given the faculty's short history. Among many important research areas, UCVM members are leaders in infectious disease and reproduction as well as regenerative medicine.<sup>31</sup> Infectious disease research at UCVM spans all departments, and much of this research has human health implications. The following stories highlight some of the examples of research that have addressed the animal-human health interface. While faculty members from UCVM are highlighted below, many of the research programs have involved collaborations between human and veterinary researchers.

Herman Barkema, DVM PhD, an internationally recognized researcher into infectious diseases in cattle, is a professor in epidemiology of infectious diseases with the Department of Production Animal Health, a Natural Sciences and Engineering Research Council of Canada Industrial Research Chair in Infectious Diseases of Dairy Cattle, a fellow of the Canadian Academy of Health Sciences, and a professor in the Department of Community Health Sciences in the Cumming School of Medicine. He studies Johne's disease, an infectious, chronic inflammation of the gut caused by *Mycobacterium avium subspecies paratuberculosis*. It is a major health concern for cattle, bison, and caribou, and is estimated to cost the Canadian cattle industry \$90 million a year. Barkema also studies mastitis, an inflammation of the mammary gland that reduces milk production and quality, and the main reason cattle producers use antibiotics.<sup>32</sup> Barkema's work is aimed at ensuring a safe and sustainable food supply through control of infectious diseases in cattle. For example, along with colleagues in the Faculties of Medicine and Veterinary Medicine, he recently completed a collaborative report on the use of antimicrobials in animals and the association with antimicrobial resistance, a current global concern.<sup>33</sup> However, he was also the major protagonist behind the Alberta Inflammatory Bowel Disease Consortium, which sought to bridge the gap between veterinary and human medicine by looking for links between disease processes in humans and animals, and investigating possible links between the infectious agent of Johne's disease in cattle and inflammatory bowel disease in people.<sup>34</sup>

The work of Jeff Biernaskie, PhD, has the potential to help both humans and animals. He discovered the existence of a multipotent dermal stem cell in adult skin, a cell that can self-renew and create new skin cells. He is using novel animal models, including reindeer antlers, to understand stem cell function and develop new approaches to wound healing and skin regeneration. The goal is to be able to regenerate fully functioning skin in place of scar tissue.<sup>35</sup>

Jay Cross, DVM PhD, has spent years understanding how the placenta develops and is maintained throughout pregnancy. A fellow of the Canadian Academy of Health Sciences and the Royal Society of Canada, his work has been instrumental in helping us understand basic physiologic processes across species. In addition to helping us understand the basic biology of pregnancy, his extensive work has given us a better understanding

of clinical conditions such as preeclampsia. Preeclampsia is a pregnancy complication characterized by high blood pressure that can lead to serious—even fatal—complications for both mother and baby. In 2013, Cross and his collaborators discovered that a mutation in a gene necessary for the metabolism of folic acid not only impacts immediate offspring but can also have detrimental health effects, such as spina bifida and heart abnormalities, on subsequent generations.<sup>36</sup> The detrimental effects of folic acid deficiency during pregnancy on development are well known. As a result, Canada and many other countries have implemented folate fortification programs that require folic acid to be added to cereal products. However, very little was known about how folic acid deficiency caused the diverse range of health problems in offspring. Cross's research has indicated that it may take more than one generation to eliminate the health problems caused by folate deficiency. The principles demonstrated by this work have implications for both animal and human health.<sup>37</sup>

Avian influenza is one of many diseases that can be transmitted from animals to humans. Up to 75 per cent of emerging infectious diseases in people originate in animals. Finding ways to rapidly identify these zoonotic diseases and to prevent their spread is an important area of research. In 2014, nearly 250,000 chickens and turkeys were euthanized after an outbreak of avian flu on 11 poultry farms in British Columbia. A decade earlier, 70 million chickens, turkeys, and other domestic birds were slaughtered in Canada's most serious avian flu outbreak, in which the virus spread to 42 commercial farms and 11 backyard coops in British Columbia's Fraser Valley. Dr. Faizal Careem's laboratory explores the avian immune responses to try to identify stimulants that can be injected into eggs to prevent avian influenza infections and protect human health, avoiding the type of mass depopulations currently employed.<sup>38</sup>

Canadian water sources for drinking and agriculture are threatened by waterborne bacterial pathogens. As many as 400,000 people around Alberta rely on well water, but only a handful of them know whether their water is safe to drink or whether it has been compromised by livestock waste and other contaminants.<sup>39</sup> Researchers in the Faculty of Veterinary Medicine work to help understand the risks and control mechanisms for waterborne pathogens. Dr. Sylvia Checkley and other UVM colleagues, working with the Alberta Provincial Laboratory for Public Health (ProvLab) and the federal government's FoodNet Canada, have explored

what factors contribute to contaminated wells and how to control them.<sup>40</sup> Dr. Checkley spends half of her time working with the ProvLab, Alberta's public health laboratory. She serves as an environmental epidemiologist helping to monitor and protect the province's water supplies.

Controlling pain is equally important in veterinary and human medicine. Chronic pain in particular can be hard to manage. Chronic pain afflicts one in five adult Canadians and an unknown number of animals. Understanding how our bodies respond to pain and finding ways to control it are critical to improving health and wellness in all species. The failure to maintain adequate pain control decreases the quality of life for many chronic pain sufferers and complicates many conditions, including cancer, stroke, diabetes, traumatic injury, and a host of other diseases.<sup>41</sup> Tuan Trang, PhD, focuses his research on improving the effectiveness of opioids, one of the most effective analgesics for serious pain, as well as decreasing the side-effects associated with opioid therapy. His work also explores the role of specialized cells that support neurons in mediating chronic pain.<sup>42</sup> His work has now spawned clinical trials in human and animal patients, looking at repurposing an old drug to manage chronic pain.<sup>43</sup>

## Clinical and Diagnostic Activities at the Animal-Human Health Interface

Every day, veterinarians impact human health, either directly or indirectly, through their work with animals, whether it be ensuring the health and well-being of animals in the food chain in order to protect food safety, vaccinating animals for rabies (a zoonotic disease), or improving mental and physical health by caring for animals.<sup>44</sup> There are many examples, but I would like to use two examples to highlight the involvement of UCVM faculty, staff, and students in protecting and enhancing human health through their professional activities.

UCVM launched Pet Health Clinics with the Calgary Urban Project Society (CUPS) to host six free veterinary clinics for pets of people living below the poverty line each year.<sup>45</sup> The program, a regular part of the third-year DVM curriculum, provides benefits for both the student and the client, creating a win-win situation. The love of a pet can help counter the social isolation of poverty and homelessness. The students are able to hone their professional skills and at the same time serve the community

and help those who are less fortunate. “For those who have experienced poverty, homelessness and the social isolation that often accompanies it, the role of a pet becomes all the more critical,” noted Amanda St. Laurent, with CUPS. “Caring for a pet can provide a sense of normalcy, responsibility, stability, unconditional love and a reason to face a new day.”<sup>46</sup> The mental and physical health benefits of owning pets are now well recognized. The opening of a dialogue regarding someone’s pet can lead to discussions that help to deliver other health and support services for those attending the clinics.

The presence of zoonotic disease in our pets is another important public health issue. Dr. Cameron D. Knight, a UCVM pathologist, was the first to report the H1N1 influenza virus in cats in Canada in 2015.<sup>47</sup> Although human infection from cats has not been reported, it is important to understand cross-species transmission. Alberta was also the first reported location for H1N1 in swine in North America. *Brucella canis*, an infectious bacterial disease rarely diagnosed in the province, was also identified in dogs in Alberta in 2015 after importation from the southern United States and Mexico. UCVM clinicians Serge Chalhoub, DVM DACVIM, Chantal McMillan, DMV DACVIM, and Sylvia Checkley, DVM PhD, led an investigation to define the problem and provide guidelines for managing animals who have tested positive or who have been exposed to dogs carrying *Brucella canis*.<sup>48</sup> These cases remind us of the importance of ensuring the health of our pets. The results of this investigation are being used to encourage the government to change guidelines on the importation of dogs to protect human health.

## Setting the Educational Framework for One Health

The examples provided above only capture a few of the many important research, education, and service activities at the animal-human-environment interface. Teaching and communicating One Health, and encouraging practising veterinarians and doctors, as well as public health practitioners, academics, and researchers, to incorporate the approach and concepts into their regular activities, remains a developing area. To aid these efforts, UCVM faculty members and international colleagues have produced an exciting textbook that highlights many more examples of One Health in practice. *One Health Case Studies*<sup>49</sup> was published in 2016

and was incorporated by Dr. David C. Hall in August 2018 into the first interdisciplinary course (UNIV 401)<sup>50</sup> in One Health to be taught at the University of Calgary.

By integrating social and policy perspectives with analyses and projects tackling the interactions between animals, humans, and their respective environments, this course signals an important commitment to the integration of concepts and principles stemming from population health, public health, and ecosystem health.

## Conclusion

The University of Calgary Faculty of Veterinary Medicine was created in large part as a response to a series of animal-human health events that had significant effects in Alberta and across Canada, as well as the recognition that the declining numbers of veterinarians serving rural Alberta had potential animal- and human-health consequences. The faculty was developed with a plan to focus on health at the animal-human-environment interface and has continued to pursue a course that aligns with this early vision. The power of comparative biomedical and health research benefits both animal and human health. The advances and contributions that have been made by UCVM since it opened in 2005 would not have been possible without the close physical proximity and strong research collaborations with the Faculty of Medicine (now the Cumming School of Medicine). It was a bold vision and one that was not without its challenges. Yet both faculties and their research programs are richer for the relationship.

There is much more that can be done and should be done to build on the collaborations in education, research, and professional services that have been developed. As the University of Calgary celebrates fifty years and looks ahead to the next fifty, building on the unique partnerships that exist between animal and human health should be one of its priorities.



## NOTES

- 1 For comparison, see Abigail Woods, “One Health, One Medicine: Reconnecting Humans and Animals within Medical History,” *Western Humanities Review* 69, no. 3 (2015): 148–69.
- 2 Jill Lebov, Khara Grieger, Donna Womack, Daniel Zaccaro, Nedra Whitehead, Barbara Kowalczyk, and Pia D. M. MacDonald, “A Framework for One Health Research,” *Health* 3, no. 1 (2017): 44–50.
- 3 Ibid.
- 4 Alastair E. Cribb and Jennifer Allford, *University of Calgary Veterinary Medicine 2004–2008* (Calgary: University of Calgary Faculty of Veterinary Medicine, 2012).
- 5 See for example Robert J. Baley, “A Tribute to Grant Gall,” *Canadian Journal of Gastroenterology* 23, no. 6 (2009): 404.
- 6 Attah Boame, William Parsons, and Michael Trant, “Mad Cow Disease and Beef Trade: An Update,” Statistics Canada, 12 November 2009, <http://www.statcan.gc.ca/pub/11-621-m/11-621-m2004010-eng.htm> (accessed 25 October 2016).
- 7 On the previous situation in Britain and some of the Canadian reception, see Michel C. F. Shamy, “While England Ate: Government and the Risk of BSE, 1979–1996,” in *The Proceedings of the 21st Anniversary History of Medicine Days Conference 2012: The University of Calgary Faculty of Medicine, Alberta, Canada*, ed. Aleksandra Loewenau, Kelsey Lucyk, and Frank W. Stahnisch (Newcastle upon Tyne, UK: Cambridge Scholars Publishing, 2015), 2–27.
- 8 Y. Guan, B. J. Zheng, Y. Q. He, X. L. Liu, Z. X. Zhuang, C. L. Cheung, S. W. Luo, P.H. Li, L. J. Zhang, Y. J. Guan, K. M. Butt, K. L. Wong, K. W. Chan, W. Lim, K. F. Shortridge, K. Y. Yuen, J. S. Peiris, and L. L. Poon, “Isolation and Characterization of Viruses Related to the SARS Coronavirus from Animals in Southern China,” *Science* 302, no. 8 (2003): 276–8.
- 9 “H5N1 Avian Influenza: Timeline of Major Events,” World Health Organization, 25 January 2012, [http://www.who.int/influenza/human\\_animal\\_interface/H5N1\\_avian\\_influenza\\_update.pdf](http://www.who.int/influenza/human_animal_interface/H5N1_avian_influenza_update.pdf) (accessed 25 October 2016).
- 10 Ibid.
- 11 Michael Bliss, *William Osler: A Life in Medicine* (Toronto: University of Toronto Press, 1999).
- 12 Philip M. Teigen, “William Osler and Comparative Medicine,” *Canadian Veterinary Journal* 25, no. 4 (1984): 400–5.
- 13 See also chapter 1 in this volume by Frank W. Stahnisch.
- 14 Bachelor of Health Sciences (BHSc), “Program Proposal Integrated Pipeline Program for Applicants from Aboriginal Backgrounds” (2013), 2–3. Available from Cumming School of Medicine.
- 15 Cribb and Allford, *University of Calgary Veterinary Medicine 2004–2008*.
- 16 Harvey Weingarten, “Notice to the University Community” (August 2004). Available from the University of Calgary Faculty of Veterinary Medicine.

- 17 Ibid.
- 18 Danny Joff (president-elect), "Address to the Alberta Veterinary Medical Association" (2004). Available from the University of Calgary Faculty of Veterinary Medicine.
- 19 The three streams were subsequently renamed as four areas of emphasis: production animal health, equine health, investigative medicine, and ecosystem and public health.
- 20 Cribb and Allford, *University of Calgary Veterinary Medicine 2004–2008*.
- 21 See "Mission," Faculty of Veterinary Medicine, <http://vet.ucalgary.ca/home/mission> (accessed 25 October 2016).
- 22 Mark E. J. Woolhouse and Sonya Gowtage-Sequeria, "Host Range and Emerging and Reemerging Pathogens," *Emerging Infectious Diseases* 11, no. 12 (2005): 1842–7.
- 23 Woods, "One Health, One Medicine," 148–69.
- 24 "One Health: A New Professional Imperative," American Veterinary Medical Association Final Report 2008, [https://www.avma.org/KB/Resources/Reports/Documents/onehealth\\_final.pdf](https://www.avma.org/KB/Resources/Reports/Documents/onehealth_final.pdf) (accessed 25 October 2016).
- 25 Susan Cork, David Hall, and Karen Liljebjelke, *One Health Case Studies: Addressing Complex Problems in a Changing World* (Sheffield, UK: 5M Publishing, 2016).
- 26 Alastair Cribb and Bonnie Buntain, "Innovation in Veterinary Medical Education: The Concept of 'One World, One Health' in the Curriculum of the Faculty of Veterinary Medicine at the University of Calgary," *OEI Scientific and Technical Reviews* 28, no. 7 (2009): 753–62.
- 27 For some of the conceptual foundations, see also Melanie Rock, Eric Mykhalovskiy, and Thomas Schlich, "People, Other Animals and Health Knowledges: Towards a Research Agenda," *Social Science and Medicine* 64, no. 9 (2007): 1970–6.
- 28 Ibid.
- 29 See also chapter 1 in this volume by Frank W. Stahnisch.
- 30 For comparison, see Robert Lampard, *Alberta's Medical History: Young and Lusty and Full of Life* (Red Deer, AB: published by the author 2008), 423.
- 31 "UCVM Strategic Directions, 2012–2017: Bringing innovation and community together to advance animal and human health," U of C Faculty of Veterinary Medicine, <http://vet.ucalgary.ca/files/vet/VetMedStrategicDirMar2012.pdf> (accessed 25 October 2016).
- 32 Hossein Jamali, Herman W. Barkema, Mario Jacques, Eve-Marie Lavallée-Bourget, François Malouin, Vineet Saini, Henrik Stryhn, and Simon Dufour, "Incidence, Risk Factors, and Effects of Clinical Mastitis Recurrence in Dairy Cows," *Journal of Dairy Science* 101, no. 6 (2018): 4729–46.
- 33 Karen L. Tang, Niam P. Caffrey, Diego B. Nóbrega, Susan C. Cork, Paul E. Ronksley, Hermann W. Barkema, Alicia J. Polachek, Heather Ganshorn, Nishan Sharma, James D. Kellner, and William A. Ghali, "Restricting the Use of Antibiotics in Food-Producing Animals and its Associations with Antibiotic Resistance in Food-Producing Animals and Human Beings: A Systematic Review and Meta-Analysis," *The Lancet. Planetary Health* 1, no. 3 (2017): 316–27.

- 34 “Vet Med Investigates Inflammatory Bowel Disease,” *UToday*, 16 March 2009, <http://www.ucalgary.ca/news/utoday/march16-09/ibd> (accessed 25 October 2016).
- 35 Sarah McGinnis, “Stem Cell Discoveries Prompt a Move Beyond Skin Grafts,” U of C Faculty of Veterinary Medicine, <http://vet.ucalgary.ca/node/2254> (accessed 25 October 2016).
- 36 Nisha Padmanabhan, Jia Dongxin, Colleen Geary-Joo, Xuchu Wu, Anne C. Ferguson-Smith, Ernest Fung, Mark C. Bieda, Floyd F. Snyder, Roy A. Gravel, James C. Cross, and Erica D. Watson, “Mutation in Folate Metabolism Causes Epigenetic Instability and Transgenerational Effects on Development,” *Cell* 155, no. 1 (2013): 81–93.
- 37 “Folic Acid Deficiency Has Multigenerational Effects,” U of C Faculty of Veterinary Medicine, <http://vet.ucalgary.ca/node/2063> (accessed 25 October 2016).
- 38 Jennifer Alford, “Researchers Use Chicken’s Immune System As Weapon Against Avian Flu,” U of C Faculty of Veterinary Medicine, <http://vet.ucalgary.ca/home/news/researchers-use-chickens-immune-system-weapon-against-avian-flu> (accessed 25 October 2016).
- 39 For comparison, see Jim Ellis, *Water Rites—Reimagining Water in the West* (Calgary: University of Calgary Press, 2018), xv–xxi.
- 40 Jennifer Alford, “Researchers Ask: Is Alberta Well Water Safe To Drink?” U of C Faculty of Veterinary Medicine, <https://www.ucalgary.ca/utoday/issue/2015-01-14/researchers-ask-alberta-well-water-safe-drink> (accessed 25 October 2016).
- 41 Nicole E. Burma, Heather Leduc-Pessah, and Tuan Trang, “Genetic Deletion of Microglial Pannx1 Attenuates Morphine Withdrawal, But Not Analgesic Tolerance or Hyperalgesia in Mice,” *Channels (Austin)* 11, no. 5 (2017): 487–94.
- 42 “Researcher Awarded Nearly \$700,000 To Investigate Underlying Causes Of Chronic Pain,” U of C Faculty of Veterinary Medicine, <http://vet.ucalgary.ca/node/2183> (accessed 25 October 2016).
- 43 Michael Mousseau, Nicole E. Burma, Yeop Lee Kwan, Heather Leduc-Pessah, Charlie H. T. Kwok, Allison R. Reid, Melissa O’Brien, Boriss Sagalajev, Jo Anne Stratton, Natalya Patrick, Patrick L. Stemkowski, Jeff Biernaskie, Gerald W. Zamponi, Paul Salo, Jason J. McDougall, Steven A. Prescott, John R. Matyas, and Tuan Trang, “Microglial Pannexin-1 Channel Activation is a Spinal Determinant of Joint Pain,” *Science Advances* 4, no. 8 (2018), <https://advances.sciencemag.org/content/4/8/eaas9846> (accessed 2 December 2018).
- 44 Woods, “One Health, One Medicine,” 148–69.
- 45 “UCVM-CUPS Pet Health Clinics Benefit Student Learning,” U of C Faculty of Veterinary Medicine, <https://vet.ucalgary.ca/home/news/student-run-clinics-offer-free-pet-care-low-income-calgarians> (accessed 27 February 2019).
- 46 Ibid.
- 47 Cameron G. Knight, Jennifer L. Davies, Tomy Joseph, Sarah Ondrich, and Brielle Rosa, “Pandemic H1N1 Influenza Virus Infection in a Canadian Cat,” *The Canadian Veterinary Journal* 57, no. 5 (2016): 497–500.

- 48 “Brucella Canis Infections Diagnosed in Calgary Dogs,” U of C Faculty of Veterinary Medicine, <http://www.vet.ucalgary.ca/node/2192> (accessed 25 October 2016).
- 49 Cork, Hall, and Liljebjelke, *One Health Case Studies*.
- 50 “One Health Experience,” U of C Faculty of Veterinary Medicine, <https://vet.ucalgary.ca/one-health-experience> (accessed 2 December 2018).

## Discussion

*Paula Larsson, Frank W. Stahnisch, and Diana Mansell*

This compiled volume has shown that the University of Calgary has made significant strides in contributions to health care on the eve of its fifty-year anniversary. After the founding of the Faculty of Medicine as a small medical school in 1966–7, the university has since expanded into many new areas of health care- and public health-relevant training and research. It has created numerous new departments, research centres, and faculties—all intent on ensuring a holistic approach to health. The Faculties of Nursing, Arts, Kinesiology, Environmental Design, and Veterinary Medicine are all vivid examples of this growth and development. In these faculties, many individuals are currently working to create innovative new projects designed to expand on current understandings of human health through a comprehensive approach that reveals how human health is part of a larger system of interaction within the world. Thus, over the last half-century, the University of Calgary has taken medicine from the patient's bedside and increasingly expanded its conceptualization into a larger network that encompasses the entirety of a community.

The earliest beginnings came in 1967, with the arrival of Dean Bill Cochrane from Halifax and the founding of the Faculty of Medicine, now the Cumming School of Medicine. The history of the Cumming School is a story of expansion, from a small academic community of physicians to a visibly diverse faculty that actively contributed to the wider network of medicine in the province. This faculty began its journey with the goal of

training family physicians for work within Calgary and throughout rural Alberta. Through the addition of new training techniques in the hospital setting, new clinical programs around the city, expanded research efforts with local populations, and a new focus on patient-physician integration, the character of the faculty is far different today. The Cumming School of Medicine went from a faculty that trained physicians *for* local communities, to one that trains physicians *through* local communities. Our students, teachers, and researchers are engaged with interactive patient programs throughout the duration of their association with the University of Calgary. In this way, the history of the faculty is one of engaged and active learning. Today the faculty is much larger—encompassing focussed research centres, institutes, and numerous departments.

There are nonetheless still issues that need to be addressed within the faculty in terms of equity, as all chapters in this edited collection have shown. Of particular relevance here is the focus on Aboriginal health. Compared with other medical faculties and universities throughout Canada, this is a field in which the U of C Faculty of Medicine has been slow to respond.<sup>1</sup> While early partnerships with Aboriginal communities showed promise, these were soon cancelled when tensions arose. Thus began a long hiatus in the faculty's concern for Aboriginal health, which would not return until the early 2000s. The first discussions of implementing an official mandate were drawn out and delayed until 2008. In more recent years, the individual actions of professors, researchers, and students have enabled Aboriginal health to be brought back into the Cumming School's focus. Yet these are personally-led initiatives, and the school still has much to do to confirm an official focus in this area.

The U of C Faculty of Nursing began not long after the Faculty of Medicine was founded. The nursing program was highly reliant on its individual professors and instructors at the beginning, with a heavy emphasis on theory-based practice for patient care. In the 1970s, though, there was a shift toward preventative care, and nursing practice zeroed in on the areas of maternal and child care and family health. A push toward prevention and lifestyle behaviour came from the active nurses in the faculty, who were concerned with population health problems in the community. This was the main reform in the nursing curriculum in the 1990s, and later programs taught empowerment and community action. Now, the faculty still contains a network of individuals working in all of

these spheres—from hands-on patient care, to community-based health initiatives. Nurses at the University of Calgary occupy the unique social spaces between diagnosis and treatment of illness—they embody the lived experience of care.

The university took a more central role in shaping provincial policy on mental health. William Blair, the first head of the Department of Psychology—which was then based in the Faculty of Arts and Sciences—was involved in the creation of the influential (and eponymously named) Blair Report for the province in 1969. The report's official title was *Mental Health in Alberta: A Report on the Alberta Mental Health Study*, and it set the tone for the department as it became a leader in mental-health-care innovation in Alberta. Research and training programs for psychologists were quickly established and the curriculum featured a focus on psychopathology, which would eventually translate into a full-fledged clinical psychology program in the 1990s. This process was a long and storied one, hindered by differences in conceptualization and funding cuts to the university budget. Now, the department has expanded once again into many diverse areas of research with local populations, including psychosocial oncology, psychogerontology, and the bio-behavioural mechanisms of chronic illnesses.

Education at the university similarly featured the interplay between biology, behaviour, and health through the development and expansion of the Faculty of Physical Education—now the Faculty of Kinesiology. Although many traditional concepts of movement and physical activity as inroads to health are preserved in the fundamental tenants of this discipline, the kinesiology faculty at the University of Calgary has diversified into many areas of research far beyond the initial assumptions of the discipline. The core ideas of the faculty stem from the ancient concepts of health put forward by Greek and Roman theorists, incorporated in modern physical education programs, humanities courses, and public-health-oriented research activities.<sup>2</sup> Yet major stimulatory events, such as the 1988 Winter Olympics and the building of new active sports facilities at the university, have allowed students and researchers to harness many innovative ideas about sport, activity, health, and wellness within their many research projects. The faculty has consistently responded to the changing lexicon of education in this area, while stepping forward into diverse new areas of research on movement and health.

Research into individual health at the university has been expanded even further by the Faculty of Environmental Design (now the School of Architecture, Planning and Landscape). This faculty is highly active in creating projects that impact the health of humans through the lens of the everyday environment. An interesting philosophy of harmony informs the mission of the Faculty of Environmental Design, emphasizing how humans interact with their surroundings and how design can be utilized to improve the conditions of life that promote negative health:

The concept of environmental design emerged in the 1950s as a way of uniting various design disciplines across a broad range of scales: from product design, through building, city and landscape design. By understanding the multiplicity of contexts (built, urban, social, cultural, etc.) that inform the complex challenges facing today's designers, the faculty's founding principles draw from a commitment to interdisciplinarity, bringing together a wide range of experts in a non-departmental faculty to develop comprehensive design solutions.<sup>3</sup>

Environmental design projects therefore encompass a wide spectrum of research, from individual environments, community and group environments, and civic and larger natural environments. This faculty has chosen projects based on the innovative concerns of its students and teachers, who often work collaboratively to address larger problems that are present within society. Thus, it has been a responsive and flexible faculty. New projects continuously tap into a larger creative network of researchers to expand on current understandings of healthy environments, and faculty members and students actively work to positively shape these spaces. The consistent flow of new ideas and research will undoubtedly continue to shape the innovative character of the faculty over the next fifty years.

Medical practice and research at the University of Calgary has repeatedly shown a deep concern for holistic and well-rounded approaches to health and well-being. This goal has, for example, cumulated in the more recent founding of the Faculty of Veterinary Medicine at the university. The Faculty of Veterinary Medicine was created under a "One Health" focus, with the goal of creating and maintaining health in humans,



animals, and the environment. This new approach to the medical sphere incorporates an understanding of the importance of healthy interactions with one's surroundings, much like the Faculty of Environmental Design. Yet the Faculty of Veterinary Medicine also incorporates medical practice and treatment in a direct and concentrated manner, much like the Faculties of Medicine and Nursing. Veterinary medicine has thus taken the university even further toward holism and responsive medicine through its One Health pedagogy, which is present in a wide range of faculty projects—from infectious disease research to epidemiological patterns, and even clinical practice.

The last fifty years have thus seen a significant growth and expansion into a new and diverse focus on medicine and health at the University of Calgary. This change has been achieved through the efforts of many personalities pushing for new methods of approaching timeless problems in human health. Faculty members in these areas are more than just teachers in a university; they are all members of a larger community of individuals that are actively involved in shaping civic health. Many are involved in research within clinics, institutes, and hospitals around the city. Other faculty members have stepped into larger organizational roles in the provincial health-care sector, or even at the federal level. The University of Calgary has occupied a unique position in the larger medical network. It has stood at the nexus of practice and innovation due to its early proximity to local communities and care centres. The school's initial beginnings in bedside care are now surrounded by integrated projects that largely benefit from the flexibility and applicability of research and joint initiatives in the city, province, county, and indeed around the world.

Although this position has afforded the university many advantages when it comes to expanding its medical contributions to local communities, this process has not always been fluid. Funding difficulties and differences of political opinion have been a constant limitation to growth in the previous half-century. In dealing with these pressures, the early expansion of the medical faculty was withdrawn and funding was reallocated away from biomedicine—for example, through the provinces reinvestment in public health initiatives attempting to rectify inequities of health in the province. These efforts were not always successful, and the history of the university—as recently told in Aritha van Herk's *The Age of Audacity: 50 Years of Ambition and Adventure at Calgary's Own University* (2016)<sup>4</sup>—

also includes stories of failure and missed opportunities. And yet, the history of these ventures into equality and awareness are important moments of learning as the university continues forward. It is likely that similar problems will continue to impact the university over the next fifty years, and this poses an important chance for reflection. In particular, the five-decade-long history of the autonomous University of Calgary has been largely shaped by its relationship to its “mother institution”—the University of Alberta in Edmonton—and in direct response to the opportunities and threats that came with the rise and fall of various provincial governments, and perhaps above all in response to the very unstable economic “boom and bust” cycles in the resource-rich and resource-dependent landscape of Canada’s West.

Nonetheless, the powerful efforts of university staff, students, professors, and researchers have taken the university forward in a variety of areas. Groups for health research, various institutes and research centres, and individually led projects outside the university setting have proven to be the norm in other departments. Stagnation has been avoided through consistent discussion of concerns and personal initiatives for change. Individuals at the University of Calgary have been responsive to shifting societal concerns and brought innovative new responses to the field. These individuals form the core network that has bound together the many fields of medical research at the University of Calgary and led to an efficacious half-century of medical and health-care contributions.

## NOTES

- 1 For comparison, see Peter L. Twohig, “Aboriginal Health in Canada,” *Acadiensis* 32, no. 1 (2002): 140–8.
- 2 David Brown, “Modern Sport, Modernism and the Cultural Manifesto: De Coubertin’s *Revue Olympique*,” *International Journal of the History of Sport* 8, no. 18 (2001): 78–108.
- 3 “History of the Faculty of Environmental Design since 1971,” Faculty of Environmental Design, <https://evds.ucalgary.ca/files/evds/history-since-1971.pdf> (accessed 27 February 2019).
- 4 Aritha van Herk, *The Age of Audacity: 50 Years of Ambition and Adventure at Calgary’s Own University* (Calgary: University of Calgary Press, 2016).

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*Medical faculties elsewhere may learn from the distinctive experience of the health sciences at the University of Calgary with its pioneering emphasis on primary care and interdisciplinarity.*

—EDWARD SHORTER, Jason A. Hannah Professor of the  
History of Medicine, University of Toronto

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*Bedside and Community* is the inside story of fifty years of health care and health research at the University of Calgary. Drawing on the first-person accounts of researchers, administrators, faculty, and students, along with archival research and faculty histories, this collection celebrates the many significant contributions the University of Calgary has made to the health of Albertans.

With contributions from the Cumming School of Medicine, the Faculty of Nursing, Faculty of Kinesiology, Faculty of Veterinary Medicine, School of Architecture, Planning and Landscape, Department of Psychology, and Indigenous Health Initiatives, *Bedside and Community* is a truly collaborative history. Addressing the links between departments, the relationship between the university and the community, and evolving research and teaching methods, this book places the University of Calgary within a wider national context and shows how it has addressed the unique health needs of Southern Alberta.

With a pioneering focus on primary care and commitment to interdisciplinary connections, the University of Calgary has made strides in health research, health education, and community outreach. *Bedside and Community* tells the story of a tradition of excellence that will light the way to future outreach and discovery.

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